A USEFUL LOOK AHEAD FROM WASHINGTON

JANUARY 1974

Nation's Business

Starting in this issue:
James J. Kilpatrick
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Nation's Business

Cover photograph by Edna Bennett

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JANUARY 1974 | MORE THAN FIVE MILLION BUSINESS AND PROFESSIONAL PEOPLE AND COMPANIES.

memo from the editor

If you are a long-time reader, you may remember that *Nation's Business* devoted much of our July, 1971, issue (see photo) to the probability of an energy crisis and what could be done to prevent it.

We have looked it up and reread it. And, like the old baseball pitcher, Dizzy Dean, used to say, "If you done it, it ain't bragging." We are pretty proud that we are able to live up to our slogan, "A Useful Look Ahead," by spotting the energy problem two and a half years ago.

Unfortunately, a good many of the remedies that were prescribed back then were never put into effect. Now the crisis has arrived, and we are all feeling it.

• • •

You might properly ask what *Nation's Business* and its publisher, the Chamber of Commerce of the United States, have been doing to get the right things done.

I think we can show that we have kept you informed of the developments and needs.

The Chamber itself has urged the government—both the Executive branch and Congress—to take steps within government's power. For example, it has been a prime supporter of legislation to get the Alaskan pipeline started. Congress has finally passed that law, but it will be years before the desperately needed oil begins to flow—years that could have been saved by faster action.

• • •

The National Chamber is also taking some important steps now to help its members in the business community cope with the present energy problems.

It is creating an Energy Impact Center to take data on the adverse impact of energy shortages in business; to feed this information to the newly created Federal Energy Administration; to disseminate data on successful approaches used by business to conserve energy; and to publish periodic "Energy News Alerts" for use by local and state chambers of commerce and trade and professional associations in keeping their membership informed.

Also, in cooperation with the National Association of Manufacturers, it is assembling in Washington an Energy Users Council composed of corporation and association executives to exchange information on how energy shortages are affecting various businesses, help communicate the needs of business to the Administration and Congress, and suggest effective long-range policies for meeting energy needs in the future.

In the legislative field the Chamber is urging that environmental laws be changed to help deal with the

energy problem, that deep-water ports and more offshore drilling be permitted (see article on page 44), and that natural gas be deregulated.

• • •

We are also proud to announce a new monthly feature—a thoughtful, and hopefully thought-provoking column by James J. Kilpatrick.

I think it can truthfully be said that Jack needs no introduction to most of you. His newspaper column is printed all over the country. His radio and television comments are also carried nationwide. He is regarded by many as a leading spokesman for the conservative point of view and by most of his fans as a straight thinker.

I commend to you his first column, on page 9, "The Confidence Tree."

Jack Wooldridge

Special Pre-Bicentennial Offer Framed Rare U.S. Coin Collection

The growing interest in the upcoming Bicentennial celebration has been generating attention to the coin world. New coin designs are planned for 1976, with this directing attention to older, rarer issues. These 'collector' coins are bound to become more scarce as 1976 approaches.

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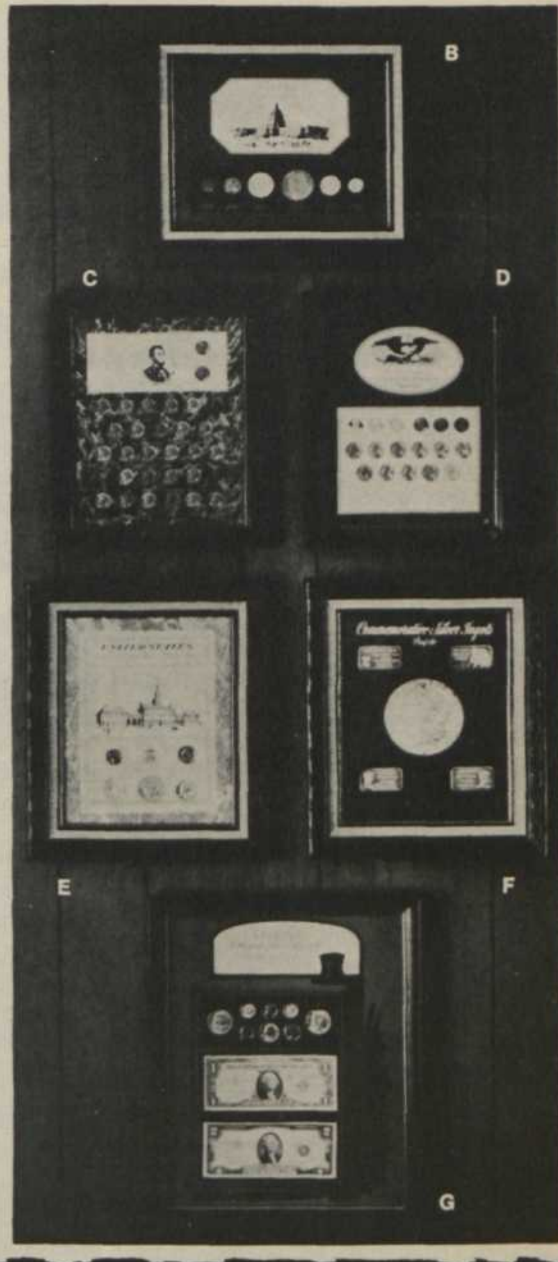

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executive trends

BY JOHN COSTELLO
Associate Editor

And a Happy New Year

"There's a new definition of courage," one wit says.

"Namely, giving your fuel oil dealer back talk."

And then, there are other cheerful gleanings from the events of these days.

• It's taking manufacturers longer to collect from customers. An average of 44 days, according to the latest statistics of the Credit Research Foundation.

That means about $88 billion outstanding on the cuff.

The all-time record for slow pay, the Foundation says, was an average of 45 days.

That happened in 1970, in the trough of a slump.

• Forecasters at the Wharton School believe we have a fighting chance to slide through 1974 without a painful recession.

Provided, they say, that petroleum supplies fall off by only two million barrels a day.

But if the shortage hits three million, they add, unemployment should reach 6.4 per cent and output should shrink 0.3 per cent.

• With oil and gas short, experts say, we need every pound of coal we can bring out of the ground.

Half of it, in the U.S., comes from strip mines.

The Senate has passed a bill that, the National Coal Association reports, would slash their output 50 per cent.

The House of Representatives is working on a similar bill.

"It would cut production even more," the Association observes.

• And more sun spots are on the way. The National Science Foundation says astronomers see signs that the sun's beginning a new 11-year cycle of flare-ups.

Some people say sun spots knock the socks off the stock market.

Wheat from chaff for your office staff

Want to cut down on the lemons who wind up on your payroll?

One expert offers some tips.

"It boils down to five basic rules," says Howard G. Martin, publisher, Skil-Tests, San Diego, Calif.

"Recruit, screen, interview, test and check references."

When one of your clerks leaves to get married, and wants you to hire her girl friend, it's just as well to see who else would like the job before you make up your mind, he cautions.

Ads in your local newspaper are the best way to get a flock of applicants, he advises.

Then, he says, make each job-seeker fill out an application.

You'll find that a lot of them don't really have what you need. Those who do, he adds, should be interviewed.

In some jobs, like receptionist, a scintillating personality may be a must. A short talk can tell you if an applicant has it.

If you want a top-speed typist—or shorthand expert—a test will tell you if she has the credentials or not.

But don't count on winding up with a mini-skirted beauty who has all the office skills and then some. The Equal Employment Opportunity Commission may get you—if you're biased toward five foot two, eyes of blue.

Men can type, too, it points out. If you rule them out, Uncle Sam may throw the book at you.

Or maybe Male Secretaries of America, an association that's a little jaundiced about female chauvinism, may blow the whistle.

There's a trend toward male secre-

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taries, says Herbert E. Nelson, the association's former president. He's a C.P.S.—Certified Professional Secretary—and assistant to the president of *The Record*, a Hackensack, N.J., daily newspaper.

Why a man to handle the dictation and typing?

Secretaries today, Mr. Nelson says, tend to be administrative assistants. You don't have to wear eye shadow to be good at that.

How to pull a Bobby Riggs

Not all the hustling's done on the tennis court—or the golf links.

A lot of it goes on in the executive suite.

So says Robert F. Pearse, chairman of the behavioral science department at Boston University's College of Business Administration.

"But there is a difference," he adds.

"Sports hustlers like Riggs try to leave the impression that you can whip them.

"They set you up by making you mad.

"On the other hand, managerial hustlers try to convince you, and others, that they're more able and influential than they really are."

Here are some types easy to spot:

• Aggressive: He likes to come on strong. His fast talk and domineering manner bowl over less self-assured competitors. Chances are he's no expert. But he talks a good game.

• Seductive: A charmer who can twist people around his little finger. He has charisma by the bucketful and uses it for all it's worth. He's a taker, not a sharer. Sometimes, his good looks and social charm wear thin, and he peaks early.

• Apple-polisher: He'd walk over his grandmother to please the boss. Often he gets along great with older superiors. They're flattered when a smooth young subordinate caters to their every wish. At the same time, he ingratiates himself.

• Promoter: He learned early that few people check out everything you say. So when he's selling hard—stock, Rolls-Royces or himself—some are bound to buy his pitch. He won't let you pin him down to the nitty-gritty. He sprinkles stardust.

How can you keep your company free from hustlers?

"By stressing management by objectives and rewards that are tied to measurable results," Prof. Pearse says.

Making employees company fans

Try starting a hobby club.

Or maybe a dieting class.

Both are surefire morale builders, some experts say.

Often, they make for togetherness.

"Hobbies like model railroad building, stamp collecting, or painting often tap enthusiasms shared by top management and workers on the production line," says Walter W. Caddell, executive director, Hobby Industry Association of America, Inc.

The Diet Workshop, Merrick, Long Island, N.Y., offers a 10-week course that companies such as Polaroid Corp. are very high on.

"We started our weight-losing program two years ago," says Joseph M. Yerardi, who handles employee education and recreation for Polaroid.

The response was excellent.

"I get two or three calls a day from employees who ask: 'When's the next class starting?' "

Polaroid now has Diet Workshop programs at three of its locations, in Waltham, New Bedford and Cambridge, Mass.

"When one ends, we start another," Mr. Yerardi adds. "We now run them all the time.

"They help employees feel that the company cares."

Successful alumni include Mr. Yerardi.

"I took off 47 pounds in 10 weeks and I feel great," he says.

Another is a woman employee who went down from "about 300 pounds" to 126.

"She used to walk with a cane to help hold up her weight. Now she's getting married," Mr. Yerardi says.

Success breeds success.

More than 300 U.S. companies employ full-time professional recreation directors.

by James J. Kilpatrick

The Confidence Tree

Not long ago, at our home at Scrabble, Va., in the Blue Ridge Mountains, an unhappy decision had to be made: A sturdy old hemlock was squarely in the path of a long-awaited new greenhouse. The greenhouse couldn't be located anywhere else. The hemlock had to go.

It was a painful decision, for we love trees, and the hemlock was a beautiful tree. The collies used to snuggle under its dark green skirt, finding shade in summer and protection in winter, and when the collies weren't watching, the rabbits rented their room. It was a Christmas-card tree, the kind of tree you always picture with snow on its branches and one bright star in the background.

But it had to come down. My wife went inside, so she wouldn't have to watch, and the two yard boys who come on Saturday mornings, James and William, lopped off the lower limbs with a hatchet. Then they cut into the heart of the tree with an ax, making a fatal notch, and Joe Caliandro, who does our stone work, managed to cinch a rope around the top. James and William got on either end of a bucksaw. A few minutes later, with an awful wrenching and splintering, the hemlock fell. It lay heavily on the ground. After a while the boys cut it up for fire logs, and that was the end of the hemlock. It had been a long time growing, but it was a short time coming down.

I tell the story for purposes of parable. In parables, as in fables, objects have names, and if I were naming that hemlock I would name it the Confidence Tree. This is because confidence is a beautiful and cherished thing, not ever to be taken lightly. It stands secure, tall and straight, untouched by storm. The Confidence Tree grows slowly, but two yard boys on a Saturday morning, wielding an ax and a saw, can get it down in a hurry.

So much for parables. My theme is confidence. Over the past 25 years or so—generally since the end of World War II—our country has been moving toward a crisis of confidence. That word "crisis" is a word to be used with care. When I was editing a newspaper, I had a rule for my editorial writers: They were never to describe anything as all-important; they could find something outrageous not more than once a quarter; and they were limited severely to only two crises a year. The word has a fine edge; we ought not to dull it by cutting cardboard. But the crisis I have in mind—the critical point at which a tree topples—demands our most thoughtful concern.

Confidence—the kind of confidence we need to worry about—ordinarily comes in two forms: confidence in men, and confidence in institutions. But institutions are no more than lengthened shadows of the men who hold responsibility for them. It comes down to the same thing.

What I am suggesting is that in one major field after another—in those important areas that most keenly affect our everyday lives—men have done those things they ought not to have done, and they have left undone those things they ought to have done. For whatever reasons of expedience or necessity, they have tended to subordinate old values. In particular, they too often have failed to reflect on the value and nature of the Confidence Tree; and they are lopping off its branches, one by one.

The Harris Survey attempts periodically to get a fix on this condition. Americans in a nationwide sample are asked if they have "a great deal of confidence, only some confidence, or hardly any confidence" in the leadership of various institutions. In a specially commissioned study prepared for a Senate subcommittee, the Harris pollsters recently developed some deeply disturbing data. Between 1966 and 1973, for example, the people's "great deal of confidence" in medicine dropped from 72 to 53 per cent. In religion, the drop was from 41 to 36, in major U.S. companies from 55 to 20, in the Supreme Court from 51 to 33. Some of the figures looked better than those for 1972, but the findings are nonetheless dismaying.

The Gallup Poll puts its similar question a little differently, but in a report last July on eight major institutions it indicated the same disenchantment. According to Gallup, only churches and public schools had "a great deal" or "quite a lot" of confidence from more than half the people. The poll found "big business" at the bottom of the list of institutions, just under organized labor.

Such empirical data is supported by the subjective impressions of experienced correspondents who cover a national beat.

Almost all of us have written of young people "disillusioned with the system." We have reported the apathy of an electorate that turns out

The Confidence Tree *continued*

only three of every five eligible voters in a Presidential election. Other observers comment upon the declining membership of most churches. We write of welfare rolls that reflect convulsions of both the spirit and the economy. A spokesman for the Institute of Life Insurance, William H. Abell, warns that public confidence in his industry has eroded. The most widespread reaction to Watergate, as charges of corruption began falling on Republican heads, was that the Republicans were merely unlucky in getting caught: "Everybody does it."

I am a newspaperman. I may not be qualified to speak to the troubles of other institutions, but I can speak to the public's declining confidence in the press. In 1966, by the Harris Survey, 29 per cent of the people had "great confidence" in the press. It wasn't much. By 1973, that had improved to 30 per cent. It still wasn't much. My guess is that the causes for at least some of this dismal appraisal can be identified. Some of the great newspapers, in whose image we all are reflected, have tended to confuse news and opinion; they have failed to correct palpable errors; they have relied too often on unidentified "sources"; they have left an impression not of reporting the news, but of making the news; they have subordinated such old values as neutrality, objectivity and fairness. Our lower branches lie on the ground. Who lopped them off?

Let us assume, *arguendo,* that the diagnosticians are right: The condition exists; a general crisis of confidence, if it is not already upon us, is at least close at hand. What are the consequences?

Those of us who work the Washington beat probably would answer first in terms of Richard Nixon. A little more than a year ago, in November of 1972, he stood at the very pinnacle of his long career. With upraised arms, he and Spiro Agnew accepted a victory almost without parallel: 62 per cent of the popular vote, 97 per cent of the electoral vote, all the states but Massachusetts in the bag. In the popular view, at least, he had scored diplomatic triumphs in Moscow and Peking; he was shortly to complete the hard task of withdrawal from Viet Nam.

Then disaster struck. You look at photographs of Mr. Nixon then, and at photographs of Mr. Nixon now. The contrast would touch a heart of stone. In November, 1973, a Harris Survey found that 65 per cent of the people believed the President "does not inspire confidence." Nearly half the respondents felt he was "not a man of high integrity."

One perceives the consequences not merely in Mr. Nixon's personal ordeal but also in the reaction to his Presidential acts. He had no sooner ordered the alert in the Middle-Eastern situation than reporters were probing for answers to the question that had to be asked: Was the alert truly justified as a military precaution? Or was the alert a diversion from Watergate? The reporters were widely criticized for "impudence" and "hostility," but they were doing their job. The question was universally on the public mind.

Again in November, we saw the runoff effect of this erosion. On Nov. 7, Mr. Nixon spoke merely of "speed limits on the public highways," with no hint of special treatment for trucks and buses. On Nov. 25 he asked for lower limits, but with a significant change: 50 miles per hour for passenger cars, 55 for trucks and buses. The cynical suspicion swept at expressway speed across the country that somebody—the truckers or the Teamsters—had gotten to the President in the meantime. Two years earlier, his rational explanation might have gone unchallenged: As a general proposition, trucks and buses operate more efficiently, at a considerable saving of fuel, at the higher speed. Now the loss of confidence has taken its toll.

It is not especially difficult to explain the "why" in the matter of President Nixon. He lost confidence because he lost touch.

That is the one thread that runs through this whole miserable fabric: Richard Nixon lost touch with his own reelection committee. He lost touch with his closest aides. He lost touch with his own leaders in Congress. He went for months without meeting the press. It seems never to have occurred to him that the people would react as they did to the spending at San Clemente or his firing of Archibald Cox or the shilly-shallying with the tapes.

Because of these blunders, his tasks of leadership are vastly more difficult than they might have been.

The problems of this President are unique, but the lesson has wide application.

If the press has lost the confidence of many people because it lost touch with old values, perhaps other institutions have fallen into the same error. It is a common complaint that some labor leaders, by losing sight of the old values of trade unionism, have lost the confidence alike of disenchanted members and a fed-up general public. By the same token, large elements of the business community—as the Harris and Gallup findings indicate—have wasted the confidence they once enjoyed by failing to pin their reputations to quality products. Educators can seek to restore the discipline that is indispensable to academic freedom. Public officials at every level, if they would regain public confidence, will have to turn again to the ancient principle that public office is a public trust.

The word comes from the Latin—*confidere,* to have faith in, to believe in, to rely upon, to trust. Men and institutions who gain confidence, and build upon that confidence, and hold and deserve the confidence of the people they serve, have an asset more priceless than any treasure in their vaults. The elder Pitt is authority for the observation that confidence is a tree of slow growth; but Richard Nixon, not to mention my yard boys James and William, can tell you that it doesn't take long to cut a hemlock down.

James J. Kilpatrick

sound off to the editor

Subsidies for Artists and Athletes?

The United States has a welter of expensive federal subsidy programs, ranging from aid for construction of inner city housing to payments to beekeepers.

Sen. William Proxmire (D.-Wisc.), chairman of a committee which studied these grants' costs, calls the "mammoth subsidy system" a "mindless means of spending taxpayers' money." Nevertheless, many subsidies are widely considered to be necessary, and there is even pressure for larger outlays in some areas.

Two such areas are the fine arts and amateur sports.

Uncle Sam's funding of the arts—grants to struggling artists, and other programs—is far from overwhelming. The National Endowment for the Arts, established by Congress in 1965, reports federal appropriations in this area came to $38.2 million, or 18 cents per capita, in fiscal 1973. It also reports that in 1970—the latest year for which figures are available—the West German government spent $2.42 per capita on the arts; Sweden and Australia allotted $2; Canada, $1.40; Israel, $1.34 and Britain, $1.33.

Federal support of amateur sports is even less robust. Subsidization available to the American public is limited to a $3 million summer athletic instruction program for economically disadvantaged children.

U.S. Olympic teams are funded solely through private donations, and the athletes train on their own time, many of them also holding down full-time jobs. Their Soviet competitors work full-time at athletics, supported by their country.

There are some who oppose federal subsidization of the arts on grounds that government intervention could lead to putting clamps on free expression.

Others object to subsidization of both the arts and athletics, arguing that neither are essential to the country's welfare and that the government is already spending enormous sums on so many other things.

The Olympic Committee says it does not seek federal subsidy.

But a bill to establish a National Amateur Sports Development Foundation is pending in Congress. The Senate Commerce Committee, citing benefits to Americans' physical and moral fiber from athletics, says "there is an immense variety of individual sports programs in which imbalances, lack of coordination and neglected functions are too often apparent."

And the National Endowment for the Arts stresses that it is important to improve our cultural environment by exposing a wider audience to artistic works.

What do you think? Should the government subsidize the arts and amateur athletics?

Jack Wooldridge, Editor
Nation's Business
1615 H Street N.W.
Washington, D.C. 20006

Should the government subsidize the arts and athletics? ☐ Yes ☐ No

Comments:..

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sound off response

A Call for Restoration of the Draft

A return to the draft would be good for the country.

That sums up the sentiments of most *Nation's Business* readers replying to the "Sound Off to the Editor" question in the November issue.

And many of them say the draft would be good for the draftees, too.

Readers were asked whether they feel the draft should be restored, in view of manpower problems the Army has encountered since it shifted to exclusive reliance on voluntary enlistments nearly a year ago. Since then, it was pointed out, the Army has consistently failed to meet its recruiting goals, its recruiting standards have been lowered, and enlistments in its reserve units—in the past often motivated by desire to avoid the draft—have fallen off drastically.

"Most young men, regardless of background . . . benefit from a military stint. . . ."

The poll's result: a two-to-one margin in favor of renewed conscription.

Affirmative responses show a strong current of support either for universal military service for young men or for offering them a choice between the military and such other activity as joining programs directed toward the underprivileged or the ailing.

Writes Charles B. Wade Jr., senior vice president, R.J. Reynolds Industries, Inc., Winston-Salem, N.C.: "I think the draft should be restored. More of our youth should serve our country as soldiers or for a period of time in any public service."

"Every young man should give one to five years to his country," says James B. Taylor, vice president, The Cessna Aircraft Co., Wichita, Kans. "A certain percentage [of youths trained] could be converted to regulars. The rest could be kept in various reserve categories. Such a program would make our kids better men and better Americans."

Robert N. Bailey, director of marketing, polyester division, Olin Corp., Greenville, S.C., says that it "should be a citizen's obligation and responsibility" to serve in the military and that "most young men, regardless of background . . . benefit from a military stint, if only to appreciate the benefits of civilian status."

Melvin J. Stanford, associate professor of business management, Brigham Young University, Provo, Utah, expresses concern that "the quality of people enlisting has fallen too low and there still is a shortage, especially in reserve units." He adds: "The draft is no disgrace and if restored will help bring in the relatively limited number of higher quality people needed to operate modern equipment and to provide a strong and stable military that can be expanded if war requires it."

On the negative side of the argument, many readers say more time should be allowed to test the all-volunteer concept, even if it means further pay raises and other inducements. Others hold that a peacetime draft infringes on individual rights and encourages national leaders to embark on military ventures they would not pursue if they had to depend on volunteers to do the fighting.

"We have not given the all-volunteer Army adequate time," writes T.E. Henderson, vice president-manufacturing, United Cotton Goods Co., Inc., Griffin, Ga. He says volunteers will be "more dedicated, more efficient, and more easily trained," and adds: "We need to wake up to the fact that there has been too much waste of time, training and money on young men who did not want the Army in the first place and will not give their best at any time."

William Giovanello, president, Lazarus Co., Columbus, Ohio, thinks more young men might volunteer as time dissipates "the anti-Army sentiment that trailed the Viet Nam War."

Fred Johnson, president, Howard Advertising Associates, Columbia, Md., says that "regardless of the problems encountered, involuntary servitude is inconsistent with each individual's right to live his own life."

Clarence J. Anderson, owner of a radio service firm in Burlington, Kans., writes: "If Truman had had to go to Congress for manpower, we might never have had Korea. Ditto for Kennedy, Johnson, Nixon and South Viet Nam. The draft didn't take a cross section of young America, it took the poor and disadvantaged to do the fighting and dying."

"Why not ask the 18- and 19-year-olds who would have to fight the wars . . .?"

William H. Brahany III of Port Huron, Mich., a veteran and now a student, responds with a query of his own: "Why the hell would you ask businessmen whether or not they favor restoring the draft? Why not ask the 18- and 19-year-olds who would have to fight the wars for the rich? Better still, ask big business if they would like to be drafted and let the 18- and 19-year-olds decide."

There is a division of opinion between Mr. and Mrs. Gordon Laughead Jr., parents of an 18-year-old son and partners in a Grand Haven, Mich., company that makes pianos.

Mr. Laughead proposes that all able-bodied youths be required to serve in the regular forces and then go into the reserves for a specified number of years.

He also apologizes for numerous typing errors on his reply. His wife disagrees with his views, he says, and "I had to type this myself."

what readers want to know

• I'm totally confused. Is the federal debt limit $400 billion, $465 billion or $475 billion?

You are understandably confused. Congress periodically raises the "permanent" debt ceiling but more often than not at an unrealistically low figure. This is usually high-level wishful thinking.

For example, the present permanent ceiling is $400 billion. To keep the federal government operating, Congress had to up the "temporary" debt ceiling to $465 billion last June and then to $475 billion last month. This is the realistic red ink figure under which the government functions.

The $400 billion "permanent" debt ceiling is a pie-in-the-sky figure which can hardly be regarded as legitimate with the government continuing to spend more than it brings in.

• Why doesn't the federal government switch to a calendar year budget instead of the present fiscal year setup which starts July 1?

Legislation to do just that is introduced virtually every year in Congress. It gets nowhere. No one in government has advanced a good reason for retaining the fiscal year budget.

The government is stubborn; old habits are hard to change.

• Why is Sen. Henry M. Jackson (D.-Wash.) getting so much credit for persuading Soviet Russia to release Jews who want to emigrate to Israel?

Because he deserves it. Sen. Jackson, a likely Democratic Presidential candidate in 1976 and a power in the U.S. Senate, has convinced Russia that if it wants a better trade position with this country it had better lift restrictions on Jews who want out.

The Soviets, of course, know the Senator has a lot of clout on the issue of extending most-favored-nation status to the Russians. Under MFN status, Soviet goods shipped to this country would be subjected to much lower tariffs.

For Sen. Jackson, there is a side benefit: His efforts will endear him to the influential Jewish vote as he casts his eyes toward the White House.

• Why do such people as Gov. John Love of Colorado accept those big jobs in Washington only to have the rug pulled out from under them?

That's the way of politics. Mr. Love was plucked from the Governor's mansion in Denver to be energy czar before the current crisis came to a head. Events seem to have passed him by.

His is not a new experience. Remember John Connally of Texas? The former Treasury Secretary returned to the capital to help the Nixon Administration recover from the shambles of Watergate. He found himself sitting in the Mayflower Hotel, waiting for a call that never came. Former Secretary of Defense Melvin Laird was invited to join the inner circle and ensconced himself in a White House office. But Mr. Laird, who is leaving the White House, never got as far in as he expected.

panorama of the nation's business

By VERNON LOUVIERE
Associate Editor

Wonderful Ideas From the "Wizard of Odds"

David J. Kieselbach, nicknamed the "Wizard of Odds," has come up with a gold mine of ideas for business ventures—from manufacturing industrial diamonds for 95 cents a carat to turning out emergency escape chairs for people trapped in high-rise buildings.

The ideas flow from patents developed for the space program. They are available to the public, but without Mr. Kieselbach the public might never learn about them.

Mr. Kieselbach, a management consultant and frequent science adviser at the Marshall Space Flight Center in Huntsville, Ala., researches space-related patents under a contract with the Economic Development Administration. EDA's role is to create jobs by encouraging establishment of new businesses and expansion of older ones.

"These are not wild dreams," says the former University of Alabama professor, whose nickname stems from his penchant for studying what other people might consider odd and offbeat patents. "They are workable systems, all backed by U.S. government patents."

More than 2,000 patents are on file at the National Aeronautics and Space Administration and others are coming in, he reports. Though designed for direct space program use, many can be adapted to solve earthly problems as well.

A Nashville, Tenn., firm, using a process developed for maintaining astronauts in space on extended flights, is converting institutional waste into animal feed. This has created 65 new jobs.

A Huntsville firm has put on 100 new employees since it began using a heat-resistant cement in place of hard-to-find clay in its manufacture of decorative gas-burning fireplace logs. The cement was developed for use in rocket launch pads.

David Kieselbach and ornamental fire logs developed from space technology.

In this period of energy shortage, a major breakthrough in the use of solar energy appears imminent at the Marshall Space Flight Center. According to Mr. Kieselbach, NASA scientists have found a way to turn out heat collector plates, an integral part of a solar energy plant, for a fraction of what they previously cost. These findings will be made available to commercial users.

"We believe the process will capture and store the sun's energy in a manner that will be practical for homeowners," says Mr. Kieselbach.

The "Wizard of Odds" reports patent ideas are available for transmitting sound on a light beam, and for producing a voice typewriter, self-lubricating gears and a dashboard gauge that will flash a warning light when auto or truck tires need air.

"There is much that can be exploited by private industry," says Mr. Kieselbach. "I'm amazed that more hasn't been done." •

A Lift for the Fight Against Shoplifting

The battle against shoplifting is moving into the classrooms in New York State.

More than 350 New York State high school distributive education departments (where youngsters learn retailing) are offering lectures, supplemented by film, underlining the gravity of this form of criminal activity, and reporting how store security systems have been improved.

The program, a joint undertaking of the New York State Department of Commerce and New York State Council of Retail Merchants, was launched because of the rising incidence of shoplifting. Annual losses to shoplifters are estimated at $300 million in the Empire State alone. They're conservatively estimated at $3 billion for the nation as a whole.

One purpose of the program, says Stanley Freedgood, deputy commissioner of the State Department of Commerce, is to encourage the students "to spread the word about how shoplifting can be curbed."

Those showing an interest in the program are going out of the schools to seek cooperation from local businessmen, the news media and others in the war against retail thefts.

The Department is making widespread use of two motion pictures, "Caught" and "Shoplifting." The first, aimed at the youngsters themselves, emphasizes that conviction under a shoplifting charge can follow them throughout their adult lives. The other is shown to store management and personnel and tells how modern security devices can help thwart shoplifting.

The State Commerce Department launched a series of anti-shoplifting workshops for merchants three years ago with encouraging results. More than 200 sessions have been held, with some 8,500 store personnel attending.

Meanwhile, the State Council of Retail Merchants regularly circulates among its members bulletins urging prosecution of shoplifters and offering printed posters for display.

"We are urging our teachers to participate in all phases of this new program," says Douglas T. Adamson, chief of the State Bureau of Distributive Education. "Their help is essential to the success of this effort." •

continued on next page

panorama *continued*

Bristol's Winged Welcome Wagon

PHOTO: BRISTOL HERALD COURIER

A group representing a cross section of life in the two-state (Virginia and Tennessee) community of Bristol flew to Rockford, Ill., to give Sunstrand families inside information on what Bristol living will be like.

Half of the city of Bristol is in Virginia and the other half is in Tennessee. But when it comes to making itself attractive to new industry, Bristol doesn't deal in half measures.

When the Bristol Tennessee-Virginia Industrial Commission learned that the Sunstrand Corp. was planning to locate a plant in Bristol it moved into high gear.

A cross section of Bristol citizenry got together, chartered a 55-passenger airplane and descended on Rockford, Ill., where Sunstrand's home office is located. Sunstrand families scheduled to move to Bristol would get the story firsthand about their new home.

Included in the aerial safari were seven bankers, four educators, four civic leaders, three utilities executives, two realtors, a company president, two retail executives, a home builder, a clergyman, a newspaperman and even a coach. Some wives also went along, to give the housewife pitch to their Sunstrand counterparts.

"Everybody paid his own way," says James Sherfey, chairman of the industrial commission and general manager of the Bristol Tennessee Electric System.

"We wanted these people to be enthusiastic about making the move to Bristol and we wanted them to know they were welcome."

Some 50 families are involved in the initial move to Bristol, where the $20 million Sunstrand plant, which will turn out air-conditioner compressors, will employ about 600 persons when it is completed later this year.

At the Rockford get-together Sunstrand hosted a dinner and seminar for its visitors and company employees. Then the Bristol residents broke off into groups with their future neighbors to discuss such things as Bristol's two city governments and its tax rates, churches, real estate market, and educational, recreational, cultural and medical facilities.

For Sunstrand people who might have wondered why Bristolians would go to all that time, trouble and expense—when the company had already decided to move in—former Bristol, Va., Mayor Fred Geromancs had a succinct explanation.

"We want you, that's why we're here," he said.

And Sunstrand President Carl Sadler replied, "This signifies the beginning of a long and mutually beneficial relationship for Bristol and Sunstrand." •

A Utility Teams Up With Nature Lovers

The Detroit Edison Co. found a way to avoid confrontation with environmentalists when it decided to build a new electricity-generating plant. It cut them in on the planning.

One of the oldest and most vigorous conservation groups in the country, the National Audubon Society, was retained by Detroit Edison to help draw up the blueprint for a six-square-mile site near Port Huron, Mich., where the plant is being built.

"As far as we know, this is the first time an electric utility has asked a leading conservation organization for consultation on an environmental enhancement program," says Gilbert P. Goetz, Detroit Edison vice president for public affairs.

"And it is a fine example of how business and environmental groups can cooperate to improve our quality of life."

Only about a third of the site will be occupied by the plant. The remaining acreage is being developed for public and educational use and as an environmental buffer zone, all in accordance with Audubon Society recommendations.

The cornerstone of the Audubon plan is a 200-acre nature area. This will feature trails, observation stations, a small pond for resident waterfowl and an environmental center building. In one section, a wildlife refuge, game cover is being planted to improve the habitat of whitetail deer and other animals. Detroit Edison has planted 90,000 trees in the nature area.

"We simply told the Audubon Society we wanted a land use plan that would do justice to the ecology," William G. Meese, president and chief executive officer of Detroit Edison, told *Nation's Business*. "We gave them no other guidelines."

Says the Audubon Society:

"The decision to seek outside expertise on the most appropriate use of land and natural resources which are not essential to the production of electrical energy is a laudable and refreshing example of foresight and corporate responsibility." •

A 1,000-Foot Microphone Fights Crime

One of the latest security devices for industrial and other business establishments, spawned by continuing high crime rates, may be the longest "bug" in the world.

Westinghouse Electric Corp. engineers Fred G. Geil and Heinz Gilcher have devised what is essentially a microphone that can be up to 1,000 feet long, for use in perimeter security systems. Buried several inches underground, it detects footsteps.

According to Westinghouse, the device is basically a quarter-inch metal tube with thin, specially insulated wire threaded loosely through it. The slightest motion of the wire or distortion of the tube generates electrical impulses that set off an alarm unit.

To prevent small animals from affecting it, the detecting unit discriminates as to whether the wire jiggles or the tube bends. Filters in the circuitry screen out certain frequencies to allow the system to distinguish among various types of ground vibrations.

Westinghouse says that if development continues successfully the firm will have a product for market in 1974 or 1975, and the price will be far less than that of existing perimeter alarm systems. •

The U.S. Is "Ahead" in Telecommunications

Where does the U.S. stand in telecommunications technology?

"Generally ahead" of the other advanced countries, reports a National Academy of Engineering panel.

The panel, part of the Academy's Committee on Telecommunications, recently completed a preliminary survey on the status of telecommunications research around the world.

It recommended sizable government- and industry-funded research and development to maintain our current technological lead. It also urged a more active U.S. role in the setting of world standards and more information in a number of areas to provide the basis for better investment strategies and regulations.

In the special area of optical communications, the panel found the U.S. "the unquestioned world leader." It noted that international competition in this field "is likely to be strong" and added that "relative progress in the applications of this technology bear watching." •

A New Element in Applying Heat

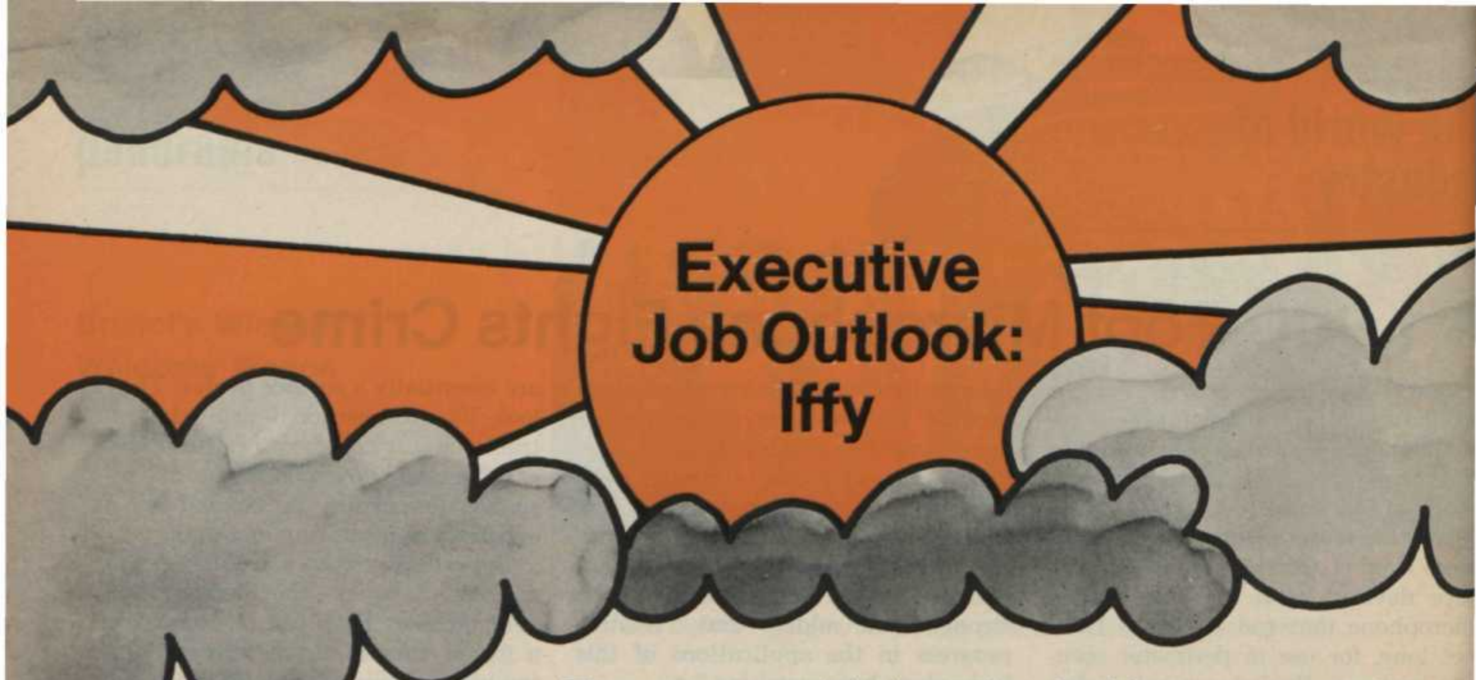
Problems with uneven heating, an irritant for the housewife frying bacon or the industrial designer laying out a processing unit, may have a solution in heating elements developed by Safeway Products, Inc., of Middletown, Conn.

Called "Thin-Heet," the elements are essentially a surface heater. They look like conventional printed electronic circuit boards after a thin layer of metal alloy, chosen for its resistive properties, is bonded to a substrate of insulating material.

Superthin—about the thickness of a sheet of paper—the elements are very flexible. They can be bonded to a flat or curved surface, thus applying heat precisely where it is needed.

According to the firm, the devices can produce different levels of heat in selected areas, or cover every inch of a surface with a uniform distribution of temperature.

An obvious application in the home is on electric frying pans. However, the firm sees the device as prompting development of entirely new products in which heat can be used for room warmth and industrial processes, as well as in the kitchen. •



Executive Job Outlook: Iffy

The energy crisis has clouded forecasts on the demand for managers this year; how large, for example, will productivity per kilowatt-hour loom?

"Schaefer is the one beer to have, when you're having more than one."

That's what the company's slogan says.

But in 1972, too many beer-drinkers weren't buying that idea. The F. & M. Schaefer Corp.'s beer sales slipped nearly $1 million.

To make matters worse, that summer the U.S. sold Moscow 12 million tons of wheat. Soon the price of flour skyrocketed. So another corporate subsidiary, Arnold Bakers, Inc., felt a severe profit pinch.

For these reasons, and others, Schaefer lost $3.57 a share. In 1971, it had earned $1.75.

Before the year was out, Schaefer was looking for help to turn the company around.

On Oct. 1, Robert W. Lear became the new president and chief executive officer.

"Schaefer wanted someone who had operated large companies in a multimarket, multiproduct business," says Mr. Lear. "Someone with senior managerial experience who was market-oriented.

"I had come up through marketing, over the long pull. And I was president, but not chief executive officer, at Indian Head, Inc.

"Schaefer had asked Wardwell Howell, who heads an executive search firm, to find a man for them.

"I had known him for many years. We live in the same community, New Canaan, Conn. We ride the same commuter train several times a week.

"I agreed to talk to Schaefer. I recognized that the company had some problems. But I felt it offered me a unique opportunity to be given complete charge of a very proud old firm—with high quality products, excellent personnel, fine marketing organizations and good plants."

In 1973, Schaefer Corp. finished in the black.

"Lear's the kind of executive who'll always be in demand," says Mr. Howell, president, Ward Howell Associates, Inc., a New York-based firm.

"We seem to get a greater call for general managers," he adds, "than any other category. These are followed by top financial men and then by senior marketing executives."

Good—but not that good

How big will the overall demand for managers be in 1974?

"It should be a very good year," says William K. Sur, vice president, Spencer Stuart & Associates, New York, "subject to the vicissitudes of the economy—relating to the energy crisis and the resulting uncertainty in business.

"Last year was excellent. And until recent months, we were probably even more bullish on 1974. But uncertainty is one of the more debilitating influences on business. Now I don't know what '74 will be like. We're sort of adopting a wait-and-see attitude."

Generally, search firms expect to see a small increase in demand for executives in 1974—up 5 per cent or less.

Los Angeles-based Boyden Associates, Inc., for example, sees a 3 per cent increase over last year. That compares with 11 per cent in 1973 over 1972.

Others say that 1974 demand won't beat the excellent 1973 figures—or that it defies prediction.

Those most in demand, search firms report, will be executives in accounting and finance, followed by general managers, then by executives in electronic data processing, marketing, manufacturing, engineering and research. Corporate attorneys and vice presidents in charge of planning and development come next, the firms add.

"Financial executives with the ability to juggle money," says Bridgford Hunt, president, The Hunt Co., New York, "will become increasingly important.

"Too, manufacturing executives and technical or engineering people with the ability to reduce the power needed within a company are going to be in great demand.

"In just about any business, the need will be for executives who can increase productivity per man-hour. In addition, there may well be a new concept of measurement of productivity. It may be productivity per kilowatt-hour."

Mr. Hunt thinks total demand for executives won't vary greatly this year from last year. Thomas A. Buffum, president, Thomas A. Buffum Associates, Boston, sees eye to eye with him.

"We don't expect an increase in demand for executives in 1974 over '73," he says. "We don't know yet what all the results will be from a continued energy crisis. What we may see, especially in the early part of the year, is spotty activity—growth in some areas and a backward stagger in others.

"This will net out to about the same demand as last year."

Heidrick and Struggles, Inc., a Chicago-based international executive search firm, is less sanguine.

"We expect demand for executives during 1974 to drop slightly," a company spokesman says.

"After reaching a peak in July and August of 1973, marking the highest level of demand since 1969, the market turned down in September and continued flat through the end of the year.

"However, compared to the doldrums of 1969, and 1970 or even 1971, demand will continue comparatively high."

Coping with shortages

Those who will be hurt hardest, Heidrick and Struggles believes, are seekers of "middle management and staff positions. Less than usual attention will be paid to strengthening this part of the corporate team.

"Demand will be strongest for proven production and executive manufacturing managers who can efficiently cope with materials shortages."

But William H. Clark, president, William H. Clark Associates, Inc., New York, is more optimistic.

"Our firm," he says, "believes that there will be a modest increase of perhaps 5 per cent in the demand for executives. Although the economy is already in very high gear, and may be flat in 1974, we believe that any belt tightening will be more than offset by the demands resulting from the energy crunch.

"For example, we expect a surge in plant and equipment expenditures in specialized industries such as transportation equipment, generators and so on.

"To highlight the point, one very logical procedure that should be increasingly accepted is the gasification of coal. After all, we have enormous coal reserves and very limited amounts of gas and petroleum.

"The cost of one such plant runs from $300 million to $600 million and —hold your hat—if the procedure were widely adapted, experts estimate that it would take all the skilled construction help in the United States to build the necessary plants and equipment."

But demand for executives is somewhat unpredictable, Spencer Stuart & Associates' Mr. Sur points out. True, it tends to be good when business is good—and bad when business is bad. But some companies swim against the tide.

Says Mr. Sur: "Here's a man who wants to bring in an executive vice president. His business has grown rapidly, more so than he thought it would in the last two years.

"So he's taking a different look at his company.

"He's about 55, and heads up a company with sales of about $600 million a year. He wants to know where his business is going and what kind of executives it needs to get there.

"He wants to free himself to do other things that aren't being done—to concentrate more on long-range planning and acquisitions."

Apart from special skills—and special demands created by an energy-short economy—there is one com-

mon denominator in current demand for executives, Buffum Associates finds.

"We have witnessed an increased emphasis on past successes," President Thomas Buffum says.

"In other words, companies are looking for executives who have a well-defined success record."

Why would a man with a track record like that switch to a new challenge?

Robert Lear tells why, at age 55, he did.

"When I became president and chief executive officer of Schaefer Corp.," he says, "this meant that for the first time I would have the complete responsibility for the corporation. If we made it, it would be to my credit. If we busted it, it would be dominantly my fault."

He went to Harvard's Graduate School of Business, he notes.

"At Harvard," he explains, "we were encouraged to keep driving until we become the chief executive officer.

"As a result, that responsibility had an undeniable appeal to me." END

UPS—AND SOME DOWNS

A survey of 494 U.S. multinational corporations shows that, overall, their demand for executives in the United States this year will increase 3.05 per cent over 1973, Boyden Associates reports.

Boyden, one of the nation's largest executive search firms, breaks the survey results down by region and job category this way (figures are percentages of expected increase or decrease in 1974, as compared to last year):

	North-east	South-east	Mid-west	West	Total Av. Increase
General Management (Presidents, General Managers, Managing Directors)	4.60	3.50	3.46	2.10	3.41
Marketing/ Sales	−.80	3.33	1.94	2.37	1.71
Manufacturing	−.50	3.33	.92	2.12	1.49
Engineering/ Research	2.00	3.83	2.35	3.08	2.81
Personnel/ Ind. Relations	1.20	2.83	1.74	1.45	1.80
Accounting/ Finance	5.00	4.16	1.48	2.47	3.52
EDP/Management Information Services	.00	2.16	.55	2.22	1.23
Corporate Planning	1.50	4.16	.01	.97	1.66
Public Relations/ Advertising	.50	2.00	.00	1.37	.96
Legal	1.70	3.83	.43	2.16	2.03

Losing Some Steam

Of course, fuel shortages will affect the economy; but the forecasts of many top executives will surprise criers of doom and gloom

QUARTERLY OUTLOOK SURVEY

The energy crisis is the great unknown factor in what will happen to the nation's economy in the months ahead, and no one is really able to predict with any degree of certainty its final impact.

However, taking into account this imponderable—which obviously is going to have some effect—and the fact that even before the crisis a slackening in last year's extremely rapid economic activity was expected, top U.S. businessmen have some interesting predictions.

Of 281 executives responding to the 49th NATION'S BUSINESS Outlook Survey, more than 39 per cent expect the economy to level off. But roughly 31 per cent think economic expansion will continue upward, though at a slower rate. In fact, many who forecast a leveling in activity believe the economy will slow only for the first six months of 1974 and then pick up steam in the second half.

A third sizable group (about 28 per cent), however, feel the economy is headed for a downturn and a possible recession.

This is how answers to major queries in the survey break down:

To the question, *"Where do you think the nation's economy will go from here?"* 110 businessmen say it will level off, 87 see it continuing on up while 80 predict a definite downturn. Not all executives answered every question in the survey.

There's an overwhelming desire to end Phase IV controls. Asked, *"Would you be in favor of toughening, modifying or abolishing Phase IV controls?"* 224 think they should be ended, 23 say they should be tougher while 21 vote for some modifications.

"What are you looking for in 1974 in the way of sales or volume for your business in comparison to 1973?" drew this response: 194 see higher sales, 55 forecast the same level and only 31 predict drop-offs.

Answers to the question, *"How about profits? How will they compare to 1973?"* present a somewhat less rosy picture. One hundred and forty executives say their firms will record higher net earnings, while 70 see them dropping and 63 look for about the same level of profitability.

To the query, *"What's your posture on capital investments in 1974? Are you planning increases or decreases?"* 113 say they plan increases, 98 see the same level of spending for new capital goods and equipment while 44 report their firms will spend less.

In answer to, *"What do you expect in the way of national unemployment rates for 1974?"* 155 predict higher joblessness, 95 forecast it at about the same level while 16 say it will head lower.

There is a virtual stalemate on a question as to whether 1974 will see a continuation of "relatively mild" collective bargaining by unions. Of the answers, 132 are in the affirmative, 134 are in the negative.

Businessmen feel that disruption to the economy from the energy crisis—which began to be perceived as a major threat late last year—could be small if it is handled well and we have a little bit of luck. But it's also possible, many businessmen think, that the energy problem could push

the economy into a tailspin in 1974.

"The nation's economy will suffer a temporary downturn due primarily to an energy shortage which could very possibly result in job layoffs resulting in a lessening of spending power," comments Canton O'Donnell Jr., president of Bayly Corp., Denver, Colo.

"We forecast the economy will move up at a slower pace because of supply bottlenecks and a softening in consumer and housing demand," says Lee J. Nash, vice president, Crocker National Bank, San Francisco, Calif.

"The economy will continue upward at a more modest growth rate," says Rodney C. Gott, chairman, president and chief executive officer, AMF Inc., White Plains, N.Y. He cites "the uncertainties of controls, currency fluctuations, ramifications of the Middle East war and lack of confidence in the Administration."

Mr. Gott thinks the most encouraging aspect of the economy is "the consumer's willingness to spend, particularly in light of higher prices and relatively low levels of confidence in the future."

The economic expansion will "probably level out," according to Walter O. Spencer, president and chief executive officer, The Sherwin-Williams Co., Cleveland, Ohio. He goes on: "Plants are running near capacity. Unemployment is low. Consumer confidence is waning. Raw materials are short. Real output cannot grow much more. High world-wide demand may increase inflation, however."

Continued expansion rests on some big ifs in the view of William B. Johnson, chairman and chief executive officer of IC Industries, Chicago, Ill. "If we can make substantial progress toward solving the energy and Middle East situations and do not experience serious disruption of production, the economy should continue on up, but at a more gradual rate," he says.

Last year was a record one for IC, but Mr. Johnson expects this one to be slower. "Barring an energy shortage-induced slowdown," he says, "1974 should be a good, but not outstanding, year."

A former Secretary of Commerce, John T. Connor, chairman of Allied Chemical Corp., Morristown, N.J., looks for "small growth in GNP during the first half of 1974, with gains in the second half due to the fundamental strengths in the economy."

In a few words, Robert W. Hawkinson, president and chief executive officer, Belden Corp., Geneva, Ill., sums up the widely prevailing view on the control program as the new year begins: "Phase IV has been a failure. I would favor abolishing it."

Only a slightly more favorable view on controls is expressed by William H. Dial, chairman of the executive committee, First at Orlando Corp., Orlando, Fla. "Phase IV has helped control inflation," he says. "I think, however, that it has served its purpose and sometime early in 1974 consideration should be given to lifting it."

Walter E. Hoadley, executive vice president and chief economist of the Bank of America, San Francisco, Calif., comments wryly that he would be in favor of "abolishing" controls, "but we're obviously on the verge of an expanded set of allocation-type controls."

As already noted, the survey shows an outlook for profits that is not quite as good as that for sales.

"Our volume should increase approximately 10 per cent over 1973 due to the introduction of new products," says A.E. Busch, chairman, Keuffel & Esser Co., Morristown, N.J. "In spite of this, we foresee no material profit increase since higher raw material costs cannot be passed on due to basic margin rules of Phase IV."

Kenneth W. Self, president, Freightliner Corp., Portland, Oregon, sees both sales and profits up "a modest amount" in 1974. He adds: "Rising costs of material and labor will eat up allowable price increases."

M. John Slikas, president, Day's

Telltale signs can tag your busi
We'll show you how to take the

Losing Some Steam *continued*

Inc., Tacoma, Wash., forecasts first-half sales even with 1973 and a 15 per cent increase in the second six months.

"We're planning on the same percentage increase in profit," he reports, and continues: "But it's going to be very difficult to reach. There's tremendous pressure on wages and salaries; big increases in paper and other supplies."

According to John L. Gillis, senior vice president, Monsanto Co., St. Louis, Mo., the big chemical firm expects an increase of 10 per cent "or slightly less" in sales, but slightly lower profits, "largely because of shortages of raw materials and energy."

Monsanto, Mr. Gillis reports, plans a capital spending increase of 50 per cent in 1974. "A continuation of heavy demand at home and abroad" is the economy's most positive factor, while "political troubles and the Mid-East problem" rate as the least encouraging factors, he says.

Capital spending by Washington, D.C.-headquartered Southern Railway System in 1974 is expected to equal last year's record of $160 million, says W. Graham Claytor Jr., president. Of this amount, about $90 million will go for 70 new locomotives and 3,200 freight cars.

Mr. Claytor is mildly optimistic about the outlook for railroads. The rails should, he believes, benefit from any shifting of large tonnage freight from trucks due to fuel shortages. But, he adds, they could be adversely affected if the energy crisis curtails industrial production of shippers.

The Outlook Survey included a question on the energy situation: *"What steps should be adopted to help solve the long-range energy problems of the U.S.?"*

"Expedite the Alaskan pipeline; allow wellhead prices to go up and allow more controlled strip mining of coal," are the suggestions of Earl Beall, president of MFC Services, Jackson, Miss.

For James L. Pate, director of business research, B.F. Goodrich Co., Akron, Ohio, "a long-range solution to the current energy problem first requires the coordination of our nation's energy planning and environmental programs. Once consistency is established among our nation's goals, we must move rapidly to increase supplies of existing forms of energy and develop new sources of power."

T.R. Fiddler, president, D.H. Holmes Co., Ltd., New Orleans, La., recommends a substantial tax hike on gasoline and using the money to improve mass transit and finance research on "energy alternatives."

Lewis H. Bond, chairman and chief executive officer, The Fort Worth National Bank, Ft. Worth, Texas, emphasizes "improved tax incentives for oil producers and removal of crude oil price ceilings." He also counsels a heavy commitment to atomic and solar energy research, and easing of "unrealistic" environmental standards.

Karl D. Emerson, president, Portland Pipe Line Corp., Portland, Maine, urges "more realistic environmental regulations to encourage use of coal," and also talks up conservation: "Limiting horsepower in autos and boats, changing to year-round daylight saving time, requiring new homes and offices to be insulated, and promoting mass transit to reduce auto usage."

But Harold Burson, chairman of the Burson-Marsteller public relations firm, New York City, believes the short-term answer to the energy crunch is "rationing, in spite of the difficulties of implementing it." Long-term, he says, "it's development of alternate resources."

END

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How the American economic system developed. In 200 years, the independence and self-reliance of our early settlers led to an economic system in which the rights and choices of the individual are of paramount importance.

How individuals have, and must continue to have, the right to choose the line of work they will enter, to use their skills to enter business for themselves, to seek capital to enter business, to own and control property, to produce a product, and to seek to make a profit.

How competition assures that our limited resources will be used to produce the things consumers demand.

How economic growth and an increased standard of living for all of us depends on new inventions and ideas developed by our citizens—developed because an individual can profit from his creativity.

How our economy is based on the concept of reward, or profit, for those who produce things people want or need.

How economic and political freedom are mutually interdependent.

How in the past, in our desire for more and more products, we overlooked how much of our natural resources we were using up, and how much polluting waste we were creating. It is now the responsibility of business, government and individual citizens to work together on these problems.

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Bachelorhood Has New Offspring

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They represent types of degrees that can be earned by students participating in special study programs which more and more colleges are offering along with traditional programs.

The idea is to give more flexibility in choice of courses to students who are working toward goals that do not fit into established patterns.

The National Association of State Universities and Land Grant Colleges reports two general approaches have developed in the special programs, most of which have evolved over the past five years (although the University of Washington has had one for over 35 years).

In the most popular approach, a student has a broad field of concentration, such as ecology or urban affairs, that cuts across the standard requirements for degrees. A concentration on ecology, for example, could involve engineering, chemistry, botany, zoology, economics, law and fine arts.

In the second approach, a student can work out a broad-based course of studies without concentrating in any field.

Students work under a faculty counselor but have great responsibility for meeting course requirements on their own. Most students report they are working harder and getting more out of school.

Some examples of the degrees offered: University of Massachusetts—Bachelor's Degree with Individual Concentration; University of Minnesota—Bachelor of Elected Studies; University of Oklahoma, Bachelor of Liberal Studies; University of Michigan—Bachelor of General Studies.

END

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LESSONS OF LEADERSHIP

PART CIV

David Packard of Hewlett-Packard

A faithful employer

In the fall of 1931, two Stanford University sophomores, David Packard and William R. Hewlett, got to know each other as bench warmers on the football squad.

They found they had a mutual interest in electronics. When they were graduated in 1934 they were close friends and thinking about going into business together.

In 1938 they did, in a backyard garage in Palo Alto, Calif. The firm they started as a partnership was incorporated in 1947, as Hewlett-Packard Co., but they have stayed partners of a sort. Today they jointly own a 50,000-acre ranching operation on spreads in California and Idaho where they raise some 5,000 head of cattle annually for market.

The ranches are Mr. Packard's hobby; he has a love of the outdoors dating back to his boyhood in Pueblo, Colo., where he was born in 1912.

But, as everything he touches in the business world seemingly does, the ranches make money.

The company he and Mr. Hewlett started on a shoestring has sales at the $600-million-a-year level now. Multinational—six of its 22 plants are overseas and 40 per cent of its sales are to foreign customers—it has 28,000 employees. Most are non-union, the only exceptions being those in a few foreign countries, in some of which union membership is mandatory.

Employees have faith in the company, Mr. Packard says, and the company demonstrates that it has faith in them.

Mr. Packard and Mr. Hewlett together still own more than 50 per cent of the stock. With about 6.5 million shares, Dave Packard is worth hundreds of millions of dollars.

For nearly three years, starting in 1969, he served in Washington as deputy secretary of defense. The accumulated dividends from his Hewlett-Packard stock in that period, plus the stock's market appreciation, came to about $22 million. Under a trust arrangement, all this money went to educational and charitable institutions.

When the firm was incorporated, Dave Packard was elected president and Bill Hewlett, vice president. When Mr. Packard came back from the Pentagon, he returned as board chairman, with Mr. Hewlett remaining president and chief executive officer, slots he had filled in his colleague's absence.

In addition to concentrating on long-range plans for his company, Mr. Packard devotes an increasing amount of time to various outside activities. He is prominent in business community affairs—he's chairman of the prestigious Business Council—and is on several companies' boards of directors. He is also active in charitable organizations.

A Phi Beta Kappa and holder of several patents in the electronics field, he is a member of numerous engineering and scientific societies and a former president of the board of trustees at Stanford.

Despite wealth and honors, there is little pretentiousness about Dave Packard.

He and his wife, Lucile (they have three grown daughters and a son who is a professor of classics at the University of California at Los Angeles) live in a contemporary-style house

that is modest in comparison with many homes on the San Francisco Peninsula.

It's in the midst of an 80-acre apricot orchard they own in the Los Altos Hills section, just west of Palo Alto, and Mr. Packard's six-foot-five figure can frequently be seen on a tractor as he works among the apricot trees. He also toils in a vegetable garden behind the house. (Another Packard pastime is listening to Dixieland jazz at such spots as Earthquake McGoon's in San Francisco. "I became addicted years ago," he says.)

On trips, Mr. Packard carries his own bags. He drives himself to and from work in Palo Alto, where his Spartan, carpetless office is about the size of his anteroom when he was at the Pentagon. The door is always open.

At the Pentagon, Dave Packard pulled on his coat to greet visitors. In Palo Alto, the visitor is invited to shed his coat.

It was in this shirt-sleeved, informal atmosphere that Mr. Packard talked with a NATION'S BUSINESS editor about his career.

When did you start developing an interest in electronics?

Early in the game. As a boy, I used to grab every book I could lay my hands on in the library on electricity and science. I built my first radio when I was still in grade school in the early Twenties. I later became a ham radio operator.

Did you find it difficult to make the grades that won you a Phi Beta Kappa key at Stanford?

I wouldn't say I found it difficult, but I took college very seriously. I studied very hard.

This was during the Depression. So I had incentive to do well, because that would give me a better chance of getting a job when I got through.

Did athletics play a significant role in your school life?

I enjoyed them. My father—he was an attorney—had been a fine athlete, and naturally he thought I could be. I was fairly good in track and basketball in high school but I wasn't any great shakes at football.

Yet you lettered as an end at Stanford, didn't you?

Originally, I planned to limit myself to track and basketball when I came to Stanford but once I got there a lot of pressure was put on me because I was such a big guy. So I went out for football, too.

Then I got to the point where I saw I couldn't do all these athletic things if I wanted to keep my studies up. So I limited myself to football. I took athletics as something you do for fun and don't make a big deal about.

Prof. Frederick Terman played a key role in the life of Hewlett-Packard. How did this happen?

He was a professor at Stanford and highly respected in his field, which was radio engineering. Stanford had a ham radio station and I was interested in radio and Prof. Terman was interested in sports. So we met, and afterward I took some of his courses.

In 1934, when Bill Hewlett and I were seniors, we speculated a lot on what we were going to do. We knew jobs were going to be slim. Fred Terman encouraged us to go into business for ourselves.

As it turned out, I got a job with General Electric in Schenectady, N.Y., and Bill went to M.I.T. to take some graduate work. All three of us kept in touch.

What brought you and Mr. Hewlett back together?

Prof. Terman worked out a fellowship for me to come back to Stanford in 1938 so I could work on my electrical engineering degree. That was a five-year program at Stanford and I needed another year. Bill came back for the same purpose.

I was married by then—my wife was a Stanford classmate. We rented an apartment in Palo Alto on Addi-

Engineers Bill Hewlett (left) and Dave Packard started out in a small partnership over 35 years ago and today are president and board chairman, respectively, of a huge corporation. But they don't put on airs.

PHOTO: JON BRENNEIS

son Ave. Bill Hewlett took an apartment there, too. I went by it the other day and the old garage is still out back.

Garage?

Our first plant. Bill and I set up a little shop in that garage and when we weren't going to school or doing graduate research we started making things. Fred Terman helped us find odd jobs.

We built a diathermy device for the Palo Alto Clinic. Then we made a motor control for the telescope at Mt. Hamilton, a foul signal device for a bowling alley, air-conditioning controls. . . .

How did this part-time enterprise become Hewlett-Packard?

Well, we did those things in the fall of the year.

Meanwhile, Bill developed a new-type circuit for a resistance-tuned audio oscillator. He made a working model and took it to a convention of radio engineers in Portland. The model attracted a lot of attention because it was more stable, had a wider frequency range and was less expensive than anything then on the market.

Bill and I decided that maybe this would be a good product to get started on, so we built another model and drew up a list of potential customers.

Around Christmastime, we sent out some letters with a descriptive text and a photo of the device. We got some orders back, and this was enough to convince us that we had a good product, and a market. Along about June, when I was supposed to go back to General Electric, I finally made my decision to make a run for it and go into business.

Where was your first plant?

In the same garage. Our starting capital was about $500, but we didn't need much capital because we not only designed the equipment, we also built it. We baked the paint on the metal equipment cabinets in my wife's kitchen oven. Bill and I finally got around to forming a partnership about six months later.

How well did Hewlett-Packard do that first year?

I think our sales were about $5,000. In the past year our sales were around $635 million.

Walt Disney is supposed to have played a role in the early days of your firm.

Our first big order, if you can call it that, was for eight audio oscillators from Disney. By this time we had decided to try to concentrate our efforts in the measuring instrument field, and to initially add products that we could sell to the customer who bought the audio oscillator.

You called your audio oscillator, which was the first product of the Hewlett-Packard Co., the Model 200A. Why?

Well, we thought that if we called it the Model 1, people would know we were just getting into business. So we sort of pulled a number out of our hat. I don't know why we particularly chose 200A, but that's what happened.

That I do remember, but when people ask me why we named ourselves Hewlett-Packard instead of Packard-Hewlett I don't remember. We probably were just being alphabetical, but the story you hear now is that we decided by a flip of a coin.

When did you move out of the garage?

In 1940. We rented half of a small store, and a garage in back. During World War II we moved into our first company-owned building. Our work force got up to around 100 people and sales reached $1 million annually.

How were the war years?

Bill Hewlett, who was a reserve officer, was called to active duty in the Army. I ran the show back here. It was during that period that we made a decision which has been very important to the company.

We felt that we ought to stay on a pay-as-you-go basis. During the war we had opportunities for some large contracts, but I decided we shouldn't take on anything larger than we could handle on our own. We didn't want to get overextended and do what many companies do when they take on big contracts—hire a lot of

David Packard

continued

people and, when the contracts are over, let them go.

Our company philosophy started in that period and we've stuck with it—to grow only as fast as we can with our own generated earnings and make every job we create a permanent one.

Was there any change in direction after the war?

When Bill Hewlett came back from the Army we did a lot of thinking about the future. One of the first things we did was hire some bright fellows whom Fred Terman, who was at Harvard during the war, had gathered together there.

Were you thinking of new products?

Microwave instrumentation. During the war the Navy had trouble finding someone to build some advanced microwave instrumentation for them. I thought we could do it, so I negotiated a contract and then came back here and started trying to figure out how to make it.

Looking back, I've got to admit we had a hell of a lot of nerve trying to do it. But we were able to do it and that started us in that field.

It was virgin territory. Our biggest competitor decided in the late Forties that this wasn't going to be a big market. But we didn't know any better, so we stayed in and soon built that part of our business to where it was one of our most important. We ended up with a position of world leadership.

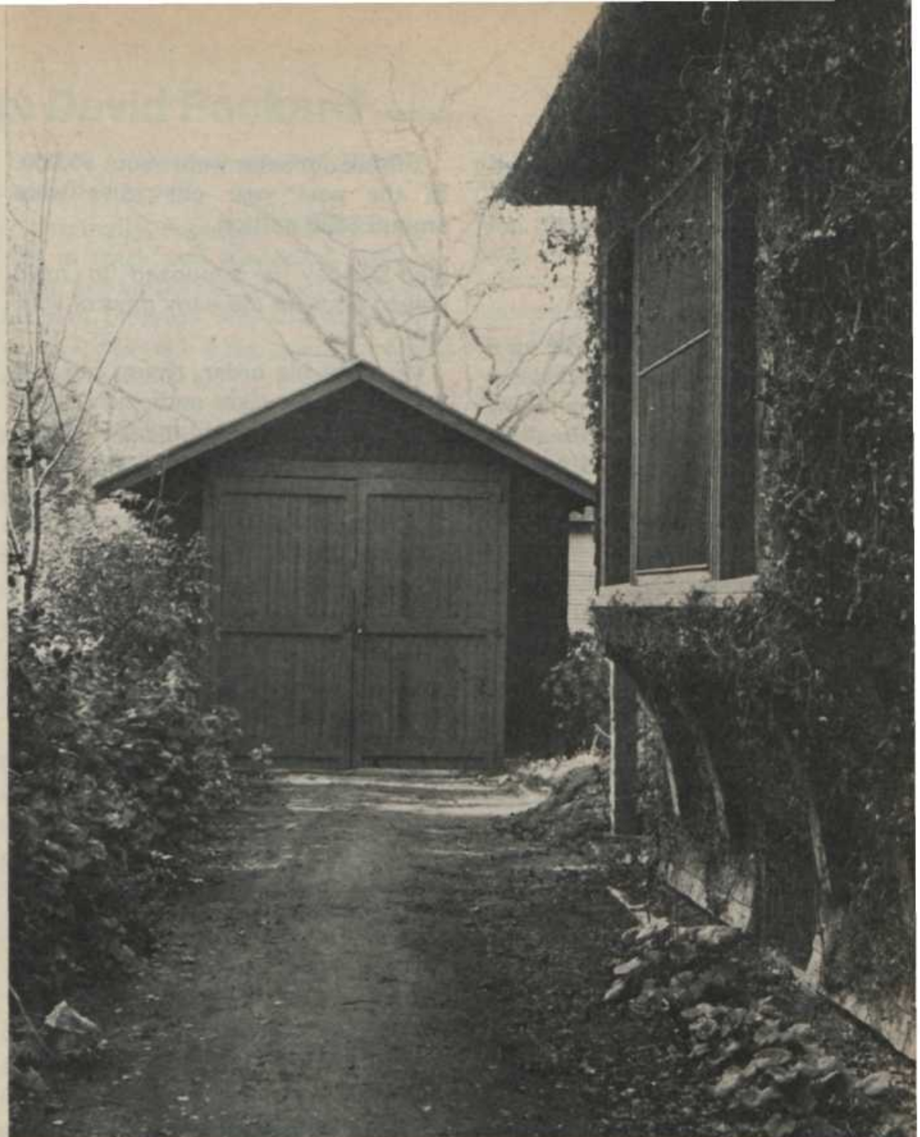
Fortunately, that was a decision that turned out to be a good one.

Another good decision was electing Fred Terman to the board of directors when we incorporated.

He continued to make valuable contributions to the company. He's a director emeritus now.

How did you and Mr. Hewlett divide your duties?

It happened pretty naturally. Bill's a much better design engineer and I liked the management and production side. The work load more or less divided up that way, but there weren't any rigid lines. If I was here I made the decision and if Bill was here he made it.



The first Hewlett-Packard product was a resistance-tuned oscillator, which the two partners constructed in their spare time in this backyard garage in Palo Alto, Calif., that is still standing today.

You've mentioned your management philosophy at Hewlett-Packard. How do you characterize it?

I don't think you can define our philosophy in any one simple term. We talk about it as management by objective, but it's really broader than that.

One of the elements, of course, is the policy that we will finance our growth through generated income. This was influenced at the very start by a strong feeling of responsibility to our employees. We felt the company would be better off if, when we hired somebody, he had some assurance of staying with the company.

This is particularly true of technical and management people. We have always operated our research and development program on the basis of maintaining a given level of activity and utilizing people in the most productive way possible—and not hiring a lot of people for a new project and then letting them go.

I was influenced by looking at the aerospace industry where, if one company got a contract, all the good aerospace engineers would work for that company and, if another company got a contract, they would go there and work. To me that didn't seem a very good way of running a show, and it still doesn't.

Another element of our philosophy has been to hire young people right out of school and have a personnel development program so we can expand from within.

That comes partly from my experience at General Electric and from observing what other companies have done. The basic GE philosophy at the time I was there was to hire people right out of school and have a number of training courses for them, as well as a program of rotation. We adopted that idea.

Where does management by objective come in?

Bill Hewlett and I were at this early in the game. I recognized pretty quickly that while I might be able to do something better than a few guys could, I certainly couldn't do it any better than 100, so I had better think about how to get our people to do their job right rather than think of how I could do it myself.

We figured that people would accomplish more if they were given an opportunity to use their talents and abilities in the way they work best.

How do you do this? You establish some objectives for them, provide some incentive, and try not to direct the detailed way in which they do their work. We've found you're likely to get a much better performance that way than if you have a more military-type procedure where somebody gives orders and expects them to be followed in every detail.

Good working conditions are also a must. We recognize that our employees spend about half of their waking hours in our plants and offices. It's very important to make that an attractive part of their life.

People do a better job if they have a good environment in which to work.

Why do labor unions steer a course around your firm?

The most important element in our personnel policy is the degree to which we are able to get over to our people that we have faith in them and are more interested in them than someone else is.

Many firms have that attitude, but their employees join unions. Employees don't at Hewlett-Packard. Why?

It isn't so much the specific things you do. It's whether the employees have faith that you are going to do right for them.

What the employee conceives your attitude to be is more important than the actions you take on compensation and other things.

Unions have a place in the world, but I felt early in the game that if management of those outfits that had labor problems had done a better job there would be less need for unions.

My philosophy on unions is very simple. If our people think a union can do a better job for them than we can, they ought to have a union. If they have faith in us, they don't need a union.

Everybody here seems to work in shirt sleeves. Why?

I guess this really goes back to the early days, when Bill and I would roll up our sleeves and go out and work on the bench with the rest of the guys. In those days we called ourselves the H-P Gang. We were all a part of the team. And that hasn't

changed. The first thing you do around here in the morning is take off your coat.

Also, we don't believe in gold plating, such as plushing up executive offices. We find better uses for our profits.

So, along with your growth, you seem to have retained informality. What's the secret?

Well, you've got to avoid having too rigid an organization.

When you get up to a certain size you need to have some sort of structure. So you work out an organization chart that gives people areas of responsibility. You make sure that all the areas are covered and relate properly to each other.

Actually, if an organization is going to work effectively the communications should be through the most effective channel regardless of the organization chart. This is what happens around here a lot.

I've often thought that after you get organized you ought to throw the chart away.

You recently adopted a flexible working hours program at most of your plants. How is it going?

Fine, so far.

Our flexible hours program is possible because our employees' attitude is such that they are not likely to take advantage of it. At the same time they see it as our expression of confidence in them.

And it's feasible for us because of the nature of our work. We don't have any production lines where conveyors are used. Most of our work can be done in batches, so both in theory and practice we can do a job just as well without a rigid time schedule. Not every company, of course, can do that.

Is the opportunity for a person to start his own business as good today as when you started?

The problems are different today, but that doesn't mean the opportunities are any less. We had a relatively simple job in those early days. We were producing things we could make with our hands, so to speak—doing things we could do personally.

Look at the electronics business today. You couldn't get started in the field with a drill press and a few hand tools. It takes a much larger investment. But people leave our company to start businesses, and many of them are successful.

What's your outlook for the company?

We intend to continue to concentrate our efforts in the field of instrumentation and measurement. We feel there is still going to be very substantial growth in this basic field.

We made a decision a few years ago to put great emphasis on automation. That was the impetus for our move into computers and automated systems.

You've entered the mass consumer market with a series of pocket-sized electronic calculators. Do you intend to introduce other such products?

We will if we can come up with some other products that are as good as our calculators.

Our very substantial base of technology will provide opportunities for us to do some things in other fields.

One of our basic criteria is that we want to make a contribution. Our whole thinking on the future is directed at areas where we can do something that hasn't been done before, or something that's better than what has been done before.

You are credited with being, when you were at the Pentagon, the driving force behind installing the "fly-before-you-buy" concept—under which weaponry must be tested before it's placed in production. Was that an outgrowth of your business experience?

Our business has been based primarily on developing new products. We've learned the hard way that an engineer is often overoptimistic on how long it's going to take to develop a new product.

He quite often thinks all the main problems are solved when they aren't, so it's very important to produce a model and shake out the bugs before you sell it.

We've made mistakes in selling things before they were really developed. We've learned it never pays.

Yet there are still cost overruns on weapons produced for the Pentagon.

I don't believe you can totally eliminate cost overrun problems under the present system.

There is continuous pressure for people to underestimate the cost of a program initially because it's easier to sell to Congress if the figures don't look too high. What has to be done is convince the committees on the Hill that these projections are estimates and can't really be considered as hard facts.

Do you think the Pentagon is manageable?

It's not manageable to the degree I would like. That may not be possible. It's manageable to a degree that's acceptable.

What counsel would you give to a business executive considering taking a government post?

To remember that Washington is essentially politically oriented and that not everything is done on a businesslike basis there. Everything in Washington has to be done in light of the political consequences.

Let me give you an example. When I was at the Pentagon I thought it would probably have been better for the country to close down a couple of the major companies in the aerospace business, since there were more companies than were necessary. But there was no way to do that because of the political constituency of some of these firms.

Did you come away from Washington with any lasting benefits?

I felt I owed this country something, so I was glad I had a chance to serve. And I stopped smoking.

Any thought about running for public office?

I've thought enough about it to be absolutely sure I'm never going to do it. END

REPRINTS *of "Lessons of Leadership: Part CIV—David Packard of Hewlett-Packard" may be obtained from Nation's Business, 1615 H St. N.W., Washington, D.C. 20006. Price: One to 49 copies, 50 cents each; 50 to 99, 40 cents each; 100 to 999, 30 cents each; 1,000 or more, 20 cents each. Please enclose remittance with order.*

Speaking Up for Industrial Survival

• I have become greatly concerned over the obvious trend in the federal government toward breaking down this country's free enterprise system by—literally—harassment tactics.

I have written to House Speaker Carl Albert and other prominent members of Congress to protest passage of an Alaska pipeline bill rider that completely removes current restrictions on the power of independent regulatory agencies to impose mandatory reporting requirements on all businesses.

Unless that provision is repealed, I told them, another terrific burden will be placed on American industry in the form of millions of dollars in added cost of paper work and in the loss of man-hours to handle that paper when they could be better spent on production.

Other problems are environmental controls, the Occupational Safety and Health Act and the recent statement in which the Antitrust Division of the Justice Department made it known it is going to investigate corporations and other businesses on "a minimal amount of evidence." The feeling is that "such cases will scare off would-be conspirators, even if no case is brought to court."

It is about time that, collectively, industry learns something from other organizations like the unions—that we must unite and start lobbying strongly and vocally for "our rights" so we can survive in spite of our government.

It is about time that industry and individual executives get off their butts so that we can get the government off our backs.

WILLIAM R. BARKER
Executive Vice President,
GEM Industries Inc.
Gardner, Mass.

A call for action

• As an organization dedicated to the reduction of death and disability from undetected and untreated high blood pressure, we want to commend you for your fine article, "Sound Advice for Any Executive: Keep Your Blood Pressure Down" [October].

The need for industry involvement in the national high blood pressure education effort is overwhelming: An estimated 23 million Americans, most of them unknowingly, suffer from hypertension. Furthermore, most deaths from undetected high blood pressure occur at the ages when persons generally reach the peak of their careers.

Your article should stimulate serious thought and action on this problem by business leaders.

THOMAS P. REUTERSHAN
Executive Director
Citizens for the Treatment of High Blood Pressure, Inc.
Chevy Chase, Md.

GAO chief comments

• Re "Congress' Quality Control Experts" [November] on the work of the General Accounting Office. I thought the article quite a good one.

It presented in a fair and favorable perspective the efforts which we are making to bring about greater economies and improved management in the federal government. Articles of this type help us in these efforts.

ELMER B. STAATS
Comptroller General of the United States
Washington, D.C.

America's Great Untapped Oil Fields

There's almost certainly enough fuel out there to fill the gap in our supplies for years, but when will oilmen be allowed to go after it?

With a full-fledged energy crisis upon us, the United States is in the situation of a man without pants, standing in front of a haberdashery while a policeman approaches, but refusing to nip into the shop and buy a pair.

The United States needs oil and gas as badly as that fellow needs pants. A big portion of fuel is as certain to be right at hand off our East Coast as pants are certain to be in the haberdashery.

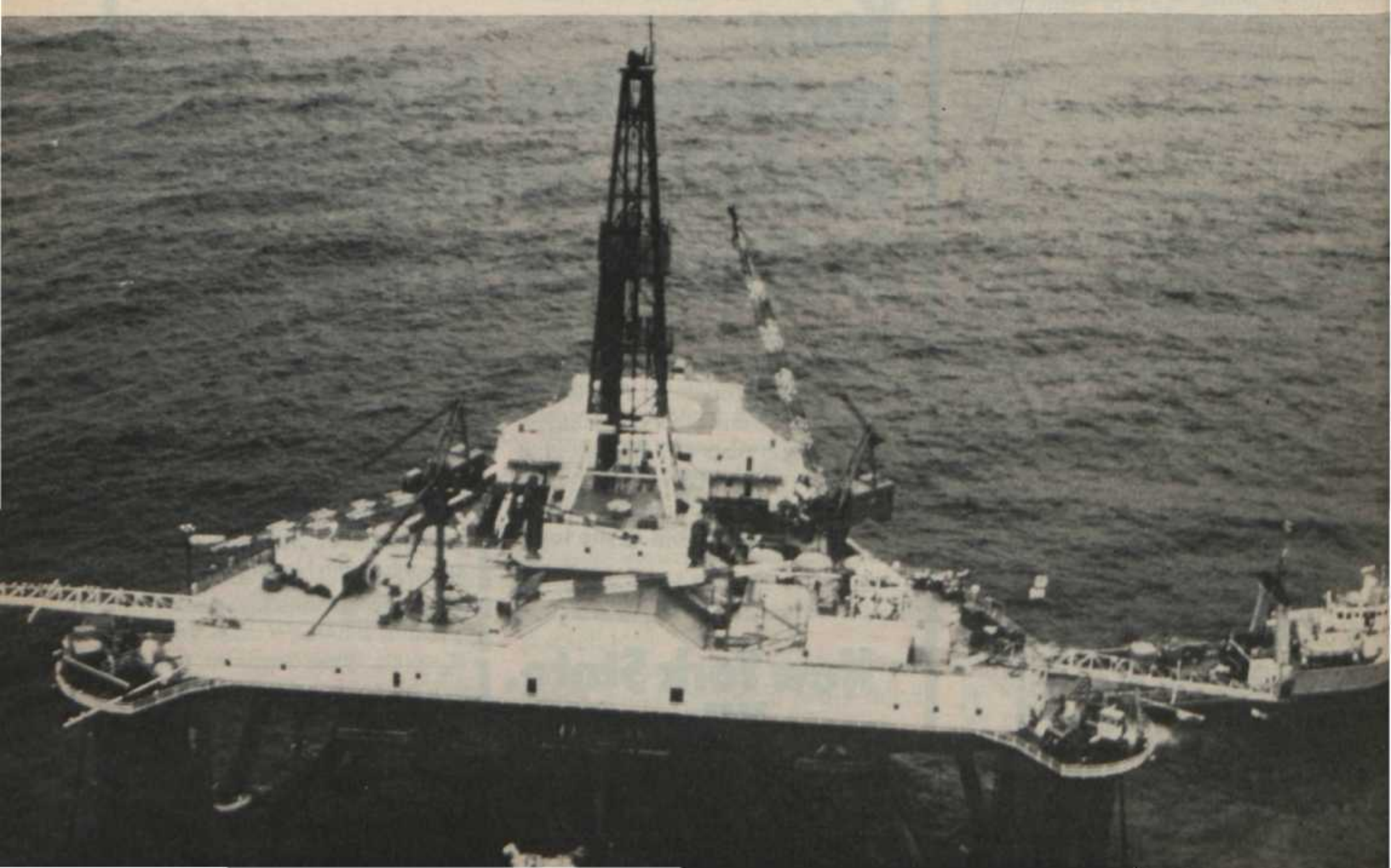
Why we haven't already gone for the oil and gas in the Atlantic Ocean beneath our Continental Shelf is another chapter in an old story.

It involves environmentalists, who until now have fought off the oil explorers on the East Coast. They fear for the fish, the sea birds and the beaches, and they want seascapes unobstructed by oil rigs, pipeline installations, refineries and drilling service boats.

It also involves red tape which has tied up Washington as if it were a giant Christmas package, with federal Departments, commissions and study groups backing and filling; claims by states that run head-on into federal claims; and a U.S. Supreme Court decision that's been overly long in coming.

But, above all, the holdup on drilling in the most promising offshore areas of the East Coast is due to the Santa Barbara Channel oil well blowout of 1969 on the West Coast, when beaches were blackened, and fish and sea birds were killed—though not in the numbers that ecologists' cries

Mobil Oil Corp. has already found large quantities of oil and natural gas with this rig and platform near Sable Island, about 125 miles off Nova Scotia. Georges Bank Basin, off Massachusetts, isn't far to the south.



implied. The public saw picture after picture of dead birds—pitiful things covered with oil—and one writer claimed the channel was "America's Dead Sea."

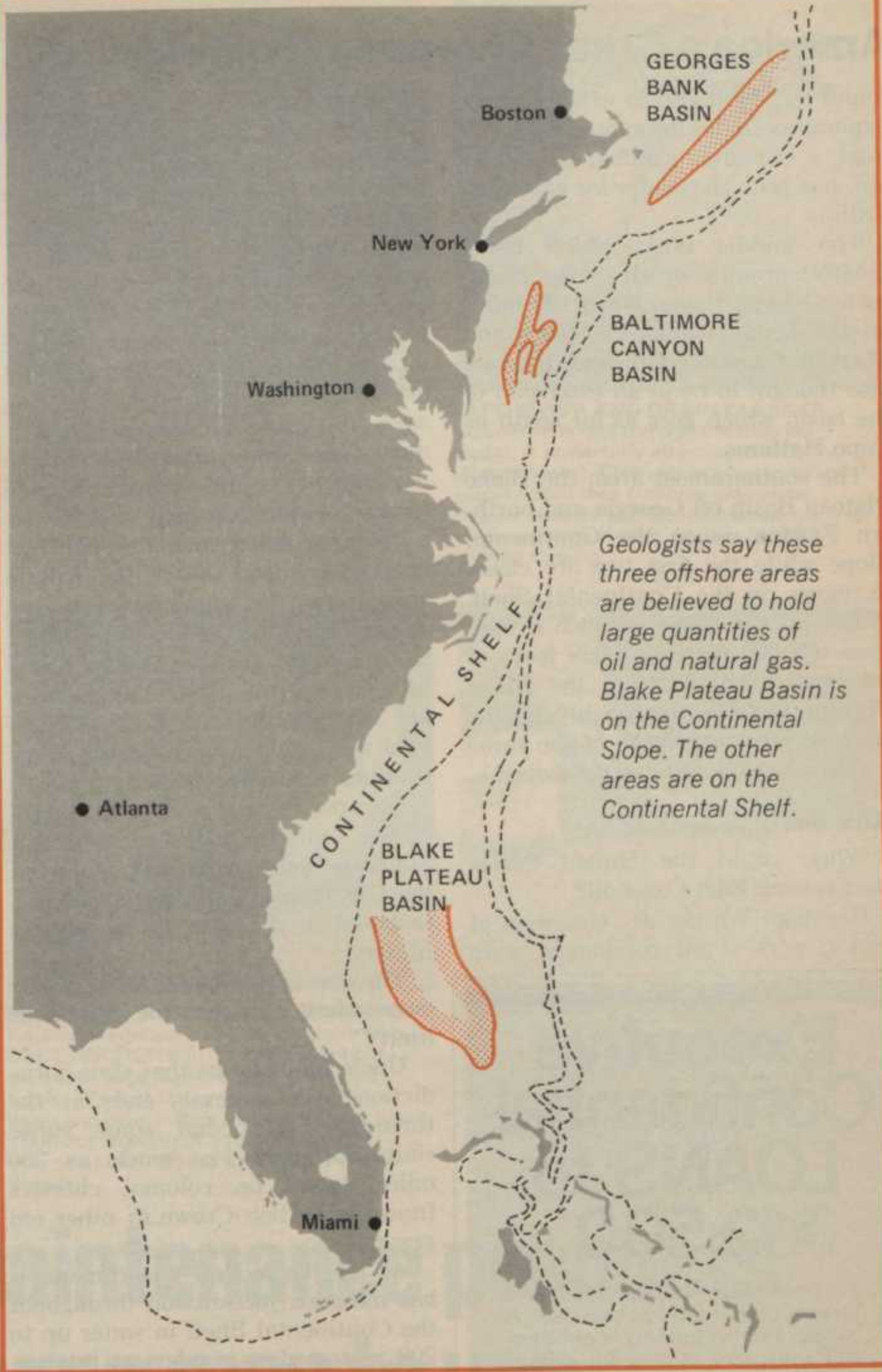
But there was comparatively little mention of the fact that for an aeon smaller quantities of oil have bubbled up from scores of natural seepages in the channel, or that the area was cleaned at a cost of several million oil-company dollars, or that there were no lasting ill effects.

The blowout set an anti-oil, anti-gas tone which only began to abate after the Arab cutoff of oil shipments to America following the latest Middle East war.

Despite a prospective shortfall of 15 to 20 per cent in the 17 million-plus barrels of oil Americans have been using daily, and the resulting emergency restrictions on consumption, the fight is still on to keep more drilling and exploration out of the Santa Barbara Channel—and what is of far more importance, to prevent development of the rich petroleum and gas resources of the East Coast Continental Shelf.

One obstacle in the way of Santa Barbara Channel oil production was removed last month, when the State of California lifted its ban on drilling in previously leased offshore tracts which are under its control. A federal ban on most Santa Barbara drilling is expected to remain in effect only for several more months, an Interior Department spokesman says. All that's needed is a stroke of the President's pen.

Action on the East Coast, however, is further off.



Geologists say these three offshore areas are believed to hold large quantities of oil and natural gas. Blake Plateau Basin is on the Continental Slope. The other areas are on the Continental Shelf.

Nothing yet, but . . .

Explorers for oil don't know for certain if what they seek is present in a particular area until they bring up some. Neither oil nor gas have actually been found off the United States East Coast, but oilmen are sure a search would pay off.

"We don't know positively that oil and gas are out there," says Dr. Wilson M. Laird, director of the American Petroleum Institute's Committee on Exploration. Then, Dr. Laird, who directed the Interior Department's Office of Oil and Gas for two years before joining API, adds:

"But we have every reason to believe a great deal of oil and gas is out there. Geological structures are similar to those around Sable Island and other offshore Canadian sites where oil has been found. Seismic work promises much.

"The Canadians have gone right ahead with exploration and we have no alternative but to do the same. The thing is, when can we get to work? We should begin right away, because the country has to have that oil and gas."

Henry Holland, vice president of domestic exploration for Mobil Oil Corp., notes there are three main areas where both oil and gas are almost certain to be. He emphasizes that all three are from 30 to over 100 miles off the coast, and therefore out of sight of land. So, environmentalists can make no legitimate claims of visual pollution.

The northernmost area lies from 70 to 100 miles off Connecticut, Rhode Island and Massachusetts. Called the Georges Bank Basin, it is near a basin extending up the Canadian coast in which oil has been

America's Great Untapped Oil Fields *continued*

found by Mobil and in which further exploration is taking place. Sable Island, a Canadian sandbar far out to sea, has been the center for extensive drilling.

The middle area, which holds greatest promise of all, is the Baltimore Canyon Basin, 30 to 100 miles off the Pennsylvania, Delaware and Maryland coasts. Oil and gas are also thought to be in an extension of the basin which goes as far south as Cape Hatteras.

The southernmost area, the Blake Plateau Basin off Georgia and northern Florida, is on the Continental Slope while the first two are closer to shore, on the Continental Shelf. Water on the slope is much deeper than the 600 meters (1,968 feet) of the shelf, and therefore the Blake Plateau Basin will probably be the last and most expensive of the three areas to be explored and developed.

How soon?

When could the United States start getting East Coast oil?

Rawleigh Warner Jr., chairman of Mobil, says if oil companies were permitted today to lease in the Georges Bank Basin, a minimum of three years would be required to explore, and an additional three to 10 years would be needed to bring production up to commercial levels.

George H. Lawrence, senior vice president of the American Gas Association, is somewhat more optimistic on the time schedule. "If we could get breakneck speed right away," he says, "we could get Interior Department lease sales under way in the next few weeks and we might be able to start exploration early in 1975.

"Now, whether or not we can get breakneck speed out of the federal government in administrative and leasing work remains to be seen. I feel we might get some added speed because of the very real energy shortage and after-affects of the Middle East war. Reductions of Middle East supplies will speed Washington up."

Government and oilmen have waited five years for a decision from the Supreme Court in the suit, Maine vs. the U.S. Other East Coast states participated in the case on the side of Maine.

The question to be settled is, "Who owns what, out past the three-mile limit?"

Uncle Sam claims that state jurisdiction over minerals ends at the three-mile limit, but some states claim far more—as much as 200 miles, based on colonial charters from the British Crown or other old grants.

As for the federal government, it has minerals jurisdiction throughout the Continental Shelf in water up to 200 meters deep, under an international agreement. But the agreement's phraseology is loose, and both the U.S. and other countries have granted drilling rights beyond continental shelves and in water deeper than 200 meters (656 feet).

Next spring a one-year study is due to be completed for the Council on Environmental Quality on consequences of drilling off the Atlantic Coast. Hearings have been held in Eastern cities with ecologists, oil and gas men, politicians and regular citizens voicing opinions.

If, and it is a big if, the environmental study recommends drilling, and if the Supreme Court soon clears up the state vs. federal question, then oil and gas companies will be asked to specify what Continental Shelf areas they are interested in. Public hearings will follow, and opponents again can be expected to have a shot at stopping exploration. Various reports will have to "lie on the table" for one to two months, meaning they will be available for study by all interested parties. Interior could then begin accepting bids on leases early in 1975.

The blowout bugaboo

No major earthquake fault lines lie along the East Coast as they do along the West Coast, and this is a huge plus in favor of permitting the Atlantic drilling. Technique and equipment for offshore work has been advancing, and safety devices that immediately shut off a blowout are now rated highly efficient by government oil specialists. Much of the new equipment and techniques were not available at the time of the Santa Barbara blowout.

"We don't claim there will never again be trouble," Mr. Holland says. "Of course there might be. But we are well along now in safety devices and we just don't expect another Santa Barbara."

Oil rigs now working in the Gulf of Mexico are festooned with safety devices as well as equipment to clean water, dispose of waste, catch and contain spilled oil.

The only things that go overside at the rigs are food scraps, and the fish like that. Oil companies claim rigs attract fish, just as jetties and underwater rocks do, and to prove this observers have been taken out to rigs in the Gulf and shown fish swimming around the straddled rig legs.

"According to best estimates," says David P. Hoult of the Massachusetts Institute of Technology, who studied what the effects of drilling in the Georges Basin would be, "commercial fisheries will not be damaged by oil spills." He estimates that if there was a big spill only 5 per cent of the oil would reach the south shore of Cape Cod in summer. During winter, because of wind and water currents, virtually no oil would reach shore.

Mobil Oil Chairman Warner touches on a sore spot for oilmen

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when he says, "Other oil-importing nations are willing to take risks to develop sources of oil much closer to home and less susceptible to foreign control."

He refers to 73 other nations which permit extensive exploration and drilling in their offshore areas, and especially to the splurge of activity in the North Sea during the past 10 years. Britain, Denmark, West Germany, the Netherlands, Belgium, Norway and France have urged oil companies—most of them American—to search for oil and gas in that turbulent area, to drill for it, and to bring it up as fast as possible. The effort has been a huge success.

Britain now gets most of her gas from the North Sea and soon oil, too, will be regularly coming ashore at Aberdeen, Scotland, through a pipeline that extends more than 100 miles to fields beneath one of the roughest, coldest, most unpredictable bodies of water in the world. Norway has been receiving oil from her portion of the North Sea for a year.

The American Petroleum Institute's Dr. Laird says there have been no big foreign blowouts that caused major damage, despite thousands of drillings. "Foreigners don't pay much attention to offshore drilling," he says. "They go ahead and get the oil and gas because they need them."

Would the Atlantic drilling be worthwhile?

The Geological Survey estimates recoverable crude oil resources off the East Coast at 42 billion barrels and natural gas at 211 trillion cubic feet. This would more than double U.S. proved reserves of oil at a time when the Middle East is a question mark and when several of the United States' other traditional foreign suppliers, for example Venezuela, are seeing their own reserves approaching danger points. Venezuela is down to 12.7 billion barrels.

The United States now has 36.3 billion barrels in proven oil reserves, including the 10-billion-barrel bonanza on the North Slope of Alaska awaiting construction of a pipeline to bring it south.

Robert G. Dunlop, chairman and chief executive officer of Sun Oil Co., considers the low reserves level a "very grave problem, a potential crisis that could become a real crisis if corrective actions are not soon initiated," and says: "No action that can be taken can be regarded as an alternative to development of the natural gas and oil reserves of our Outer Continental Shelf."

$5 billion bargain

Bankers and oil economists estimate that between $4 billion and $5 billion will be needed to explore and develop oil and gas fields off the East Coast. They say this would be a bargain compared to costs of continuing to import more and more increasingly expensive foreign oil—that is, assuming the foreign fuel is available to us. At the rate of consumption prevailing in the United States before the Arab embargo, by 1985 we would have been running, at a minimum, a $25-billion-a-year deficit in the balance of payments for oil alone.

Also, the job should be easier than in the North Sea, where drilling at greater depths is required. It also should be easier than it would be in another American area with great but untapped oil potential—the Continental Shelf off Alaska. Depths and weather problems off Alaska, where recoverable reserves are believed to add up to 54 billion barrels, are as formidable as they are in the North Sea.

Americans consume energy in huge amounts for innumerable purposes. Even if we should cut back on some of our luxuries, and reduce our demand for fuel by a large percentage, we would still need supplies we do not now have.

It is accepted that in three or four years we will be getting oil from the North Slope of Alaska. But that won't be enough.

The large caches of oil and gas that, on best authority, lie off our East Coast would be enough, however, to see us well into the 1980s.

So if the environmentalists—as well-intentioned as they may be—succeed in stopping drilling on the Continental Shelf in the Atlantic, they might be asked: Do they want to stop heating and air-conditioning their homes and offices, stop driving their cars, and start eating their food raw? END

our energy dilemma

Is the Four-Day Week for You?

ILLUSTRATION: RALPH ROBINSON

The energy crisis has heightened interest in the four-day workweek not only for private industry but for the biggest employer of all, government. Here's a report on experiences in both business and government with the shorter week and longer workday.

When Betty McClendon was offered a transfer last year from the City Finance Department in Atlanta, Ga., to then-Mayor Sam Massell's personal secretarial staff, she jumped at it.

Less than a month later, Mrs. McClendon sought and was granted a transfer to the Building Department.

Working in the Mayor's office was certainly a prestigious job for a City Hall secretary, one in which she got a chance to meet interesting people and be on the "inside" of politics.

But one thing was missing—the four-day workweek.

"I just couldn't pass up the transfer to the Building Department," says Mrs. McClendon. "It meant saving money on parking, cutting down commuter time and, more important, a chance to spend more time with my two sons."

The City of Atlanta has been experimenting with "Four-Forty"—a four-day, 40-hour workweek—for more than two years and while the experiment has not been uniformly successful it has won overwhelming approval of city employees still in the program.

For one reason or another, local governments have not been as receptive to Four-Forty as has private industry, where the shorter workweek has gained increasing acceptance. It has been tried in at least 100 municipalities and some have already abandoned it. On the other hand, the four-day week has become a new way of life in 4,000 companies, by some estimates, and is under consideration in a growing number of others.

The federal government, with 2.8 million employees throughout the nation, has taken a look at the prospect of going to a four-day week to save energy, but the look was only quick and preliminary, and no action is expected until well into the future, if at all.

An immediate roadblock is existing legislation guaranteeing most federal workers overtime pay after eight hours in one day—not after 40 hours in one week—and the cost of that one item alone would run into the billions.

Energy-saving so far has not been much of a factor in businesses' switching to four-day weeks. In nearly all cases, they have remained open for their customary five-day weeks, with employees working four days inside that time frame. So far, the same has generally been true of municipal governments which have gone to Four-Forty.

In California, the City of Los Angeles, after a six-month trial, has extended the four-day week to all 2,000 parks and recreation employees and to 1,500 city workers in nine other departments.

A variation of the plan is in effect in San Diego County, where county employees are permitted to adjust their working hours—a concept known as flextime or gliding time, which is being used by many private companies [see "Picking Your Own Work Time," NATION'S BUSINESS, September, 1973]. The county's only requirement is that the workers put in 80 hours during any given two-week period and that the resulting rescheduling does not require additional personnel.

Minnetonka, Minn., a suburb of

Minneapolis-St. Paul, ushered in a mandatory Four-Forty plan for its city employees in 1971. But after six months it became voluntary and support crumbled. Most workers preferred the traditional five-day week, it turned out. Even more important, from the standpoint of administrators, was the absence of key people on Fridays and Mondays. Also, while the major goal in turning to Four-Forty was to provide longer service hours for taxpayers, few took advantage of them. Minnetonka abandoned the plan early in 1973, except for street department workers whose union contract called for a four-day week.

Help for police

In the beginning, some cities believed the four-day week was particularly well-suited for their police departments. The use of three 10-hour shifts would create overlaps, permitting higher concentration of manpower during periods of maximum need. Some 75 police departments have tried the approach, with mixed results.

Washington, D.C., launched a four-day week in one of its police districts in 1971. It was dropped a year later. Crime had been reduced in the district—but not as much as in other districts with the five-day week.

On the other hand, Huntington Beach, Calif., is sold on the idea of a shorter workweek for policemen. That community has found response time on emergency calls has been cut 15 per cent, felony arrests have shot up 126 per cent, and sick leave and overtime have been reduced 10 per cent. Some policemen complained that the combined effects of rotation and the shortened workweek deprived them of a valuable asset—continual contacts with citizenry on their beats. But that has been resolved by putting on a fourth shift of officers.

Whatever its merits or disadvantages, Four-Forty apparently is here to stay, in business as well as in government, although for every argument in favor there is one against.

Paul A. Samuelson of the Massachusetts Institute of Technology, winner of the Nobel Prize in economics, calls the four-day week a "momentous social invention," but AFL-CIO economist Rudy Oswald says it "seems to be an employer ploy."

And Steelworkers Union President I.W. Abel, skeptical about management interest in Four-Forty, has warned: "The way some of these 'benefactors' maneuver, we have to be careful they don't offer us a two-day week—with two 24-hour days, of course."

The American Management Association, in a survey of its 800 member companies, turned up far more warmth than coolness toward Four-Forty among firms that are on it, plan to try it, or did try it and gave it up.

Businessmen polled by AMA who have no intention of going on a shorter workweek say they feel it would increase their costs.

But 38 per cent of companies already on Four-Forty report actual decreases in operating expenses. Only 11 per cent feel it has boosted their costs. Production is said to have increased in 62 per cent of the four-day firms while efficiency is reported up in 66 per cent of them.

Interestingly, AMA notes, only one company whose employees are in a labor union indicates any difficulty with the union as a result of a shift to the four-day week. The problem did not involve the union contract but union concern that the idea had originated in the company's front office. Today, the company reports, there is a high level of union satisfaction with the new schedule.

Short on overtime?

Organized labor generally is not too keen on a four-day workweek. It might mean, among other things, forfeiture of overtime pay if the workday is increased from eight to 10 hours. On the other hand, labor has been inching toward a 32-hour workweek and Four-Forty might provide a foot in the door.

The Urban Institute, of Washington, D.C., in a study of various proposals for repackaging working hours, says a four-day week for all local government workers seems to cause special difficulties in smaller jurisdictions. The most promising approach, the Institute says, may be to leave the scheduling of the workweek to the discretion of individual governmental departments.

In the Atlanta city government, then-Mayor Massell launched the four-day week in July, 1971, on a six-month trial basis.

At the conclusion of the trial period a special task force was assigned to study the results, gauge employee attitude toward the change in working hours, and then decide whether it should be continued or abandoned.

The task force recommended that "total uniformity of working hours

HOW TO SAVE FUEL AND WOW JUNIOR

A school district in Unity, Maine, has had 1,700 youngsters on a four-day week for two years and gasoline consumption on its school buses has been reduced 20 per cent.

Students attend classes the same hours as before but only Monday through Thursday.

The shortened school week was instituted not in anticipation of the energy shortage but because of a budget cut and to give teachers time to take part in a federally-sponsored in-service training program.

"These reasons no longer apply, but because the four-day school week has worked so well we are continuing it in the interest of conserving energy," reports Alfred Brewster, superintendent of schools in Unity. He says achievement tests show the schedule has had no ill effects—in fact, he adds, there has been a slight "improvement in our youngsters' achievement."

throughout the city government would be very difficult to manage effectively—this is not what we now have and it is not likely to occur in the foreseeable future." It added: "There was agreement, however, that departments and major divisions thereof had every right to elect to operate on a rearranged workweek schedule. . . ."

In the beginning, 148 employees elected to try the short workweek. Their number has now dwindled to 85. Most city department heads have been against Four-Forty since its inception. But Mr. Massell says he's "still sold on the four-day week." He told NATION'S BUSINESS: "I think where we failed was in not taking enough time to sell the idea. I'm convinced you can give more service to the public, and reduce turnover, this way without additional cost to the taxpayer."

The great outdoors

Emanuel Jones, personnel analyst for the city and a member of the task force, says he also is convinced Four-Forty has a place in the city government even though his department has dropped out of the program.

"I liked it," he says. "It gave me much more time with my family and a chance to enjoy the great outdoors."

Mr. Jones concedes that Four-Forty posed problems. But generally, he says, it tended to raise morale, and it had no noticeable ill effect on productivity in his department.

Problems that employees cite include scheduling for working couples with different hours, for working mothers who must arrange extended hours of child care, and for members of regular-hour car pools.

Mrs. Ann Johnson, a secretary in the Housing Code Inspector's Office, which still is on the four-day week, says she saves money both on babysitting and car expenses.

"And I'm not counting the wear and tear on me personally by not having to drive to and from work in the rush hour," Mrs. Johnson says. "I figure I have an extra hour and a half for myself and my family by not having to fight that traffic. And I certainly enjoy sleeping late on Fridays." END

our energy dilemma

Why Oilmen Are Over a Barrel

Not the least of the petroleum companies' problems is that they have to play long shots—and that when they lose, they can lose big

The announcement was stiff and colorless, like an obituary. In fact, it *was* a death notice of sorts.

Issued in Phoenix, Ariz., last April 12, it said:

"Exxon USA has completed analysis and evaluation of extensive seismic and strategraphic testing programs which were conducted in southwestern Arizona. Based upon results of these analyses, Exxon wishes to announce the termination of its exploration program for oil and gas in the area. It is anticipated that a large percentage of Exxon's lease holdings in the southwestern portion of the state will be allowed to expire."

Talk about understatement. The terminated Arizona program was what would have been in any other business a gigantic fiasco, a monumental bust. But for a major oil company, $6,780,000 in expenditures, four years of exhaustive exploration, the massive frustration of men of science being foiled by the mysteries of nature are, so to speak, all in a day's work.

Failure is approximately 50 times as common as success when you are looking for oil and gas. And though rewards can be substantial, when you lose, you can lose big.

In this time of energy shortages, it is important to know what is involved in today's quest for our major sources of energy—oil and gas. And the details of the Arizona bust are most revealing.

All over America, a hunt is on for someone to blame for the shortages. The air is polluted with misinformation and reckless charges, most of them against the oil companies, many of them from so-called environmentalists.

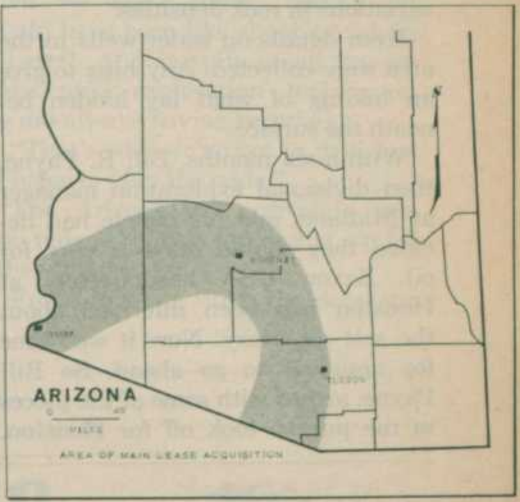
In the words of blunt-speaking Merrill W. Haas, Exxon USA's vice president for exploration, who supervised the Arizona search: "The environmentalist doesn't seem to realize we're not out to kill him. He should understand that some balance between the need to protect the environment and the need to develop our energy resources must be reached. We've got a responsibility to find the energy to keep his car running and keep him from freezing to death. It's an energy economy and we've got to feed it for the immediate future till we can get some other energy source."

That's the current crux of America's energy crisis—taking care of the immediate future, until the more exotic forms of energy are in place.

Oil and gas provide three quarters of all energy used in the United States today. And in the next 15 years, we are expected to burn as much oil and gas as we consumed in the past century.

For many Americans, the search for oil evokes the romantic memory of larger-than-life Clark Gables and Spencer Tracys shouting with joy as

An instrument truck is just a lonely speck in the vast Sonoran Desert in Arizona (far left) as men in it listen to sonic shockwaves being bounced off vast underground rock formations from distant vibrators. In an 18,000-square-mile swath (map), Exxon USA leased 1,630,000 acres for a multimillion-dollar gamble that it could find oil. When a test well went down, it was a rare sight for Arizonans. The gamble failed; the well—and others—were dry holes.



"black gold" spurts high into the air and showers down on them.

That's not quite the way it works today. Though the sweat and tears of the "roughnecks"—the men who sink the wells—are still a part of the quest for oil, science, technology and capital in enormous amounts are increasingly essential ingredients of exploration.

Below the salt?

Exxon's Arizona project—"play" in the jargon of oilmen—is a good example of what actually happens in the hunt for oil.

It started with a casual conversation between Jim Davis, who is an Exxon scout (just what the name implies), and Jim Scurlock, an Arizona Oil and Gas Commission geologist, in December, 1968.

The state geologist happened to mention that a salt company had hit a thick layer of salt near Phoenix.

"It seemed odd to me that they'd even be looking for salt in those parts," Mr. Davis says. He too is a geologist, and he knew that the area where the salt was found "is all igneous"—made up of volcanic rock.

That peculiarity led Mr. Davis to check, and he confirmed that a thick salt section had been discovered by Phoenix Salt Co. at a depth of 3,600 feet, 17 miles west of Phoenix. "I didn't think much of it at the time," Mr. Davis recalls. But when he got back to his divisional office at Midland, Texas, he "mentioned it."

One geologist after another in Midland began to wonder.

Could the thick salt section indicate the presence of a salt dome, the geological structure so closely tied to the mighty oil fields of Texas and Louisiana?

But oil in the deserts of southwestern Arizona? Oil where great forces of the past had deformed the rocks into complex structures and where for 50 million years volcanos had repeatedly covered the area with lava? Impossible. Or was it?

At Midland, a theory began to evolve that the Gulf of California in ages past could have extended into Arizona, forming a marine basin that just might hold the right type of rocks to yield profitable oil and gas production.

The wheels turn

"Certain essential conditions are needed," Exxon Chief Geologist Amos Salvador explains. "You have to have marine rocks capable of generating hydrocarbons, so-called source rocks. You need porous and permeable rocks capable of storing the oil or gas. You also need a layer of impermeable rock, a seal over the oil and gas reservoir which will stop the fluids from escaping. Finally you need a favorable structural configuration of the rocks to trap the oil and gas.

"Before drilling an exploratory well even in well-known areas, you

are never sure that all these essentials are present and properly combined."

The Arizona theorizing made just enough sense to warrant further investigation.

"After the wheels started turning at the divisional office, I was sent to get samples to age-date the salt," Mr. Davis recalls. Others began to collect bits and pieces of information ranging from pertinent geological literature to gravity studies made by an Arizona college professor and his students that gave some indication of variations in rock densities.

Even details on water wells in the area were collected. Anything to give an inkling of what lay hidden beneath the surface.

Within six months, Bill R. Payne, then divisional exploration manager at Midland, and his people had decided they should make a play for oil. Exxon USA headquarters at Houston had been informed about the salt discovery. Now it was time for approval to go ahead. So Bill Payne, armed with some of the pieces in the puzzle, took off for Houston.

"We couldn't exactly holler and pound the table because there were still so many unknowns, but it had some romance to it," he remembers.

There was plenty to be done—from seismic studies, in which impulses sent into the earth bounce off lower layers, gathering information about what it's like below, to leasing of property in the most promising areas.

Quickly and quietly

Over the next year, Exxon USA leased more than 1,630,000 acres. Most of the land arched north and west in the Sonoran Desert from the Arizona-Mexico border to California. It comprised parcels of the desert valleys from federal, state and private owners. Exxon people worked as quickly as possible and they got it tied up for $944,000. But it wasn't easy.

Obviously, they didn't want other oil companies to know of their play, so it had to be a closely guarded operation.

Arizona has no title-search companies, so lawyers had to go to county courthouses to track down property ownership records.

Since no one knew whether marine sediments lay somewhere beneath the baked desert sand, the only way to find out was to drill.

"The seismic shootings had indicated that instead of one basin, there were three," relates Douglas Garrott, who took over from Mr. Payne as division exploration manager. "But we were still hopeful."

The first hole was drilled at Picacho, near Tucson. "And were we surprised," says Mr. Garrott. "What we got was as bad as anything we could have found. Rather than marine-type rocks, we got debris, gravel. Our spirits really sank."

Mr. Garrott had two crews working in the field and a backup task force in Midland. All they could do was hope the first hole was not typical of what they might find elsewhere in that wide band of hot desert they now had under lease.

It was on to Phoenix.

"We thought there were sedimentary beds down deep," Mr. Garrott recounts. But after going down 2,629 feet, they got a shock. "We banged into a hopeless bottom of granite," he says.

But, as Chief Geologist Salvador points out, "One of the most difficult things in exploration is giving up. You always want to continue."

Third try

So, late in 1972, Exxon USA Drilling Supt. Bart Highland started still a third test well. The rig was equipped with all the necessary safety equipment to prevent an accidental blowout.

Heavy chemical "mud," which acts as a stopper to hold back gas, oil or water, was pumped into the borehole. As the bit ground even deeper, the well bore was encased with a steel jacket cemented into place to stop drilling fluids from escaping.

Every foot of the well was monitored. Time logs recorded the speed of the bit, and cuttings screened from the drilling mud revealed the nature and age of rock layers. Electronic and nuclear examinations deep inside the hole recorded properties of the rock layers in digital form for computer analysis.

The cost of such technology comes high—for seismic crews, up to $90,000 a month; for a well, up to $400,000.

Costs of guarding the environment are sizable, too. Field crews even transplanted cactuses that stood too near to traffic around the rigs. The pits that served as holding tanks for drilling fluid were lined with plastic to keep salt water from seeping into the desert. All debris was hauled away by trucks.

"All this time," says Mr. Garrott, "our competition was scouting us. Scouts from several different companies would watch through binoculars. They could count the stands of drill pipe and tell how deep we were going. They were itching to know more. But they couldn't tell what results we were getting.

"Some of the competition couldn't stand it. They began buying acreage around ours. We figured every dime they spent in Arizona was a dime they couldn't spend elsewhere.

"And some people say the oil business isn't competitive! They just don't know what they're talking about."

In truth, more than 10,000 firms, large and small, are looking for and producing gas and oil in this country. No one company produces more than 10 per cent of the oil in the U.S. The biggest refiner controls less than 9 per cent of the nation's refining capacity, the biggest marketer only about 8 per cent of what's sold here.

In the third hole, the bit ground down 12,556 feet, the deepest ever in Arizona.

But no oil.

Final plunge

"We could see we had wiped out," Mr. Garrott recalls sadly, "so the question was: Do we get out now and drop our acreage, or go on? After considerable debate up and down the line, we decided to spend another $250,000 and make sure at a fourth hole south of Yuma. At this final hole, the explorers found some rocks that appeared to be of marine origin. Off to Houston they were sent for testing to see if they could be a source for hydrocarbons."

The result?

"You could probably find more oil on your driveway," recounts Doug Garrott. "That killed it."

The Arizona play was a flop. But everyone had known all along that it was a long shot.

"There's no set rule for finding oil and gas," declares Mr. Haas, Exxon USA's exploration vice president. "It's still an art. Geological concepts evolve and technology then comes into play. Most exploration, from concept to producing the oil, takes five years."

Says Wade Turnbull, operations manager for exploration under Mr. Haas: "You wonder why, with all the advances in technology, we can't do better than we do.

"But if we had known 40 years ago what we know today, finding oil would have been like shooting fish in a barrel. And in spite of all the sophisticated exploration techniques, we are always having surprises.

"That's why we've got to drill lots of holes to play the odds."

The Arizona play certainly was not unique, either for Exxon or for other companies.

From 1955 to 1970, the domestic

Why Oilmen Are Over a Barrel *continued*

petroleum industry laid out $68 billion to find more petroleum. It drilled 653,000 wells. As its reward, it found 50 billion barrels of crude oil, 10 billion barrels of other petroleum liquids and 296 trillion cubic feet of natural gas.

But don't be fooled by the big numbers. They were nowhere near enough. A Chase Manhattan Bank energy study declares the industry would have had to spend $50 billion more to meet all the country's needs and maintain "a realistic inventory of proved reserves" during the past 15 years or so.

They saw it coming

The current energy crisis is generally depicted as an unexpected event. But oil experts have seen it coming for years. As Chase Manhattan puts it:

"The petroleum industry's inability to finance a fully adequate search first became apparent about a decade and a half ago, and since that time its annual rates of spending and drilling have fallen progressively farther behind indicated needs. And as a result, so has the discovery of both oil and gas."

The industry has always been capital intensive. It has had to spend about $7,000 for each barrel of oil output capacity. But the capital outlay probably will be higher in the future. Exploratory efforts today must increasingly focus on areas where access is more difficult, where rigs must dig deeper and where costs are higher. In the past decade, for example, the cost of drilling a well has nearly doubled. The average offshore well costs $600,000; in Alaska, it runs more than twice as much.

But—recent events in the Middle East aside—how did we get into this energy crunch?

Many oilmen claim the federal government has been largely to blame, starting in 1954, when the Federal Power Commission set the price of natural gas at the wellhead. They say this held the price of gas far below its true market value. And that had the dual effect of artificially stimulating demand and discouraging exploration for new reserves.

Another government action which hurt, they say, involves taxation. Congress reduced the oil and gas percentage depletion allowance rate to 22 per cent in 1969, and imposed the preference tax, which cut the effective depletion rate to 18 per cent —adding more than $500 million a year to the industry's tax bill.

Oilmen are convinced this was a factor in the 20 per cent decline in drilling in the two years that followed the tax change.

However, M.A. Wright, Exxon USA's chairman and chief executive officer, says one of the principal factors leading to today's energy problem is "the tremendous impact of environmental laws and regulations." He explains: "By constraining the use of coal and delaying development of nuclear power, environmental actions have caused a sudden, sharp increase in demand for liquid petroleum"—while blocking development of some domestic oil resources.

The energy shortage is, in addition, at least partly the result of a shortage of capital.

One of the myths about the oil industry is that its profits are enormous. Actually, the industry's average rate of return on net worth for the 1962-71 decade was 11.8 per cent, compared to 12.4 per cent for all other manufacturing industries, the First National City Bank of New York reports. And in 1972, the oil companies' return on investment slipped to 10.9 per cent.

Although 1973 profits were exceptionally high, years of inadequate profit level have forced the industry to turn increasingly to outside sources to finance capital requirements. In 1962, almost 92 per cent of its capital funds came from internal sources. By 1971, the figure had dropped to 77 per cent.

The National Petroleum Council, analyzing future financial needs for all industry activities, from tankers to refineries to gas pumps, comes up with a staggering figure. Between 1970 and 1985, the Council says, oil companies will need to invest between $370 and $550 billion.

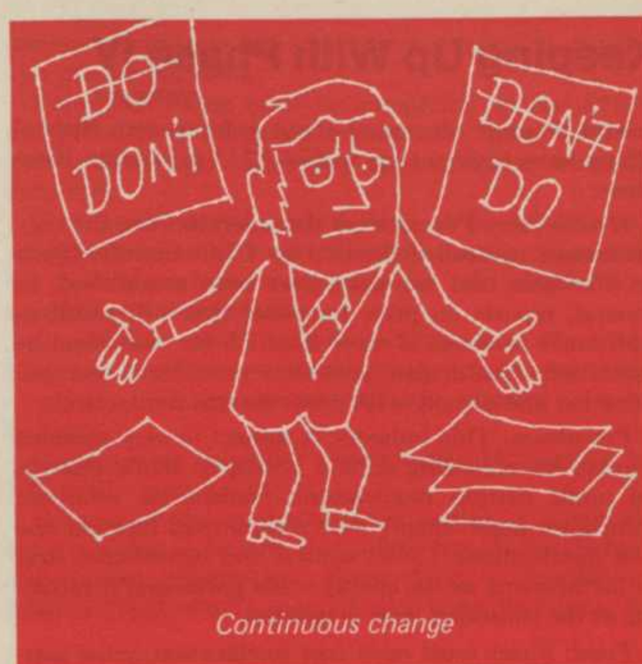
Says Chase Manhattan's study:

"The price of all forms of primary energy should be allowed to . . . move to whatever levels may be necessary to secure an adequate supply."

—TAIT TRUSSELL

Keeping Up With Phase IV

All business has to keep a watchful eye on the regulators, but be advised: They are paying more attention to some businesses than to others



Continuous change

DRAWINGS: CHARLES A. DUNN

For nearly 2½ years, American business has been subjected to a far-reaching price control program which not only has saddled it with the burden of adapting to the basic provisions of the Economic Stabilization Act but has forced it to move in new directions again and again as the winds of regulation have shifted.

There have been continuous changes—from Phase to Phase and even, to a significant degree, during the course of each Phase.

Firms which have genuinely tried to comply with the program frequently have found themselves in violation because of some change in the rules, or a new application or interpretation. This situation has been compounded during Phase IV—which began last summer—by the "piecemealing" of regulations pertaining to specific industries.

There comes a time when even the most well-meaning management may ask itself: Is it necessary or even possible to comply? An added reason for raising the question is the fact that the Economic Stabilization Act is scheduled to expire this April, and that some individual controls—notably on automobiles—have already been lifted while others probably will be removed on an industry-by-industry basis before the deadline.

Yet the answer inevitably has to be Yes, because the present law requires compliance.

In an attempt to keep as much of a lid as possible on prices, the Cost of Living Council and Internal Revenue Service have been empowered to apply sanctions, including fines and rollbacks of price increases, for violations. When such sanctions have been applied, revenues of business affected have been sharply reduced.

CLC has drawn up Phase IV regulations and has assigned enforcement and substantial administrative responsibilities to IRS. In turn, IRS has developed a review organization complete with training programs, handbooks and other procedures. It's significant that under Phase IV, IRS can launch compliance reviews on its own, while during previous Phases it acted only at CLC's direction.

Thus, the enforcement "reach" has been extended to smaller firms, as well as larger firms. And there is evidence that more firms are being reviewed now, compared to previous Phases.

Bigger—and more prominent

Within an industry, firms are generally obliged to observe the same rules on cost justification and profit-margin requirements, but the closest looks are directed at the larger firms.

Companies with annual revenues of more than $100 million must receive CLC or IRS approval before they can raise prices in manufacturing and service operations. In wholesaling or retailing, companies with annual revenues over $50 million must submit merchandise pricing plans to IRS before raising prices above freeze levels.

In addition, most firms with annual revenues over $50 million must file quarterly reports on prices, costs and profits.

Those under $50 million (referred to as Tier III) must retain support data in these areas and be ready to furnish this information on request.

Apart from size, there are specific industries that

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Keeping Up With Phase IV

continued

should be most concerned about enforcement. Special offices have been set up within CLC to oversee these areas:

• *Health care:* Providers of these services are the only businesses controlled directly by CLC. Specific limits on allowable cost increases have been established. In general, reports on price increases that will result in additional revenues of more than 2.5 per cent must be submitted. Health care providers must have cost justification and comply with profit margin limitations.

• *Petroleum:* This industry is subject to very complex regulations regarding certain products. While there is no profit margin requirement (except for refiners), companies must comply with complicated formula and cost justifications. Closer control and surveillance may be forthcoming as the energy crisis grows and if rationing at the consumer level is ordered.

• *Food:* Firms must meet cost justification, gross margin or markup, and profit margin requirements. Quarterly reporting is required if annual revenues are over $50 million. Food manufacturers must submit monthly reports to IRS or, if they are in Tier III, maintain the necessary data in their files.

• *Construction:* Operations are controlled much like custom products. Essentially this is on a profit margin requirement, except that the base year is one year and not the weighted average of two years as is the case for most industries. Construction firms may also resolve an apparent profit margin violation if it can be attributed to circumstances unique to the industry.

Penalties for noncompliance on pricing in Phase IV are, of course, primarily financial and can be substantial.

Phase IV stipulates fines of $2,500 and $5,000, respectively, for violations of a civil and wilful nature.

Compromises on fines?

Under Phases II and III, fines were generally given for administrative violations, such as nonfiling or late filing.

If the regulations were strictly applied, some fines could have been in the hundreds of thousands, or even millions, of dollars.

Example: Suppose a calendar-year firm required to report by March 31, 1973, for the year ended Dec. 31, 1972, did not do so because it had not raised prices, but subsequently realized its error and filed on June 30, 1973—or 90 days late. The potential fine was 90 times $2,500—or $225,000. However, Phase II and III experience indicated that such fines could be settled by compromise for nominal amounts of as little as $2,500 in some cases.

There is hope that Phase IV will be as reasonable under similar circumstances.

A far greater threat is the possibility of refunds and rollbacks for profit margin violations. Commonly referred to as "three-time rollbacks," the sanction here consists of a refund of the violation amount and a temporary lowering of prices in order to refund an additional amount equivalent to two times the violation amount.

Necessary chore

Stay on top

The violation is generally computed to be the excess profit margin or the price increase revenues, whichever is lower.

Here are two examples:

	Company A	Company B
Profit realized	$1,000,000	$1,000,000
Profit allowed	800,000	800,000
Profit margin excess	**200,000**	200,000
Price increase revenues	300,000	**100,000**
Maximum violation	200,000	100,000
Potential sanction	600,000	300,000

At present, there is no grace period during which refunds can be made for basic violations to avoid rollbacks. And rollbacks cannot be considered in determining profit margin compliance in the following year.

A peripheral penalty is adverse publicity. Indeed, there are cases of companies refraining from raising prices in order to preserve a low profile.

Unwelcome visits

Other effects revolve around the possibility of more frequent visits by IRS, increased reporting chores and preparation of data, and potential expansion of government review activities into other areas. Another corporate concern is stockholder reaction to noncompliance within the context of overall company performance.

Clearly, diligent compliance is a result of unequivocal top management policy. Once this is established, the machinery for compliance should be constantly refined. Large firms, which usually have the manpower and accessibility to CLC and IRS to stay abreast of developments, generally find it easiest to comply. But smaller firms should use every available avenue to keep up to date.

Many private concerns—such as law and accounting firms, consulting organizations and trade associations—put out information about the economic stabilization program and the latest changes in it. The *Federal Register* publishes all modifications to the regulations. In addition, CLC has prepared informative booklets on Phase IV, which may be obtained from the Government Printing Office in Washington. CLC also maintains a public affairs office, and all organizations subject to Phase IV should be on its mailing list. Appropriate forms and instructions can also be obtained from local IRS offices.

One of the most crucial tasks, however, is to properly prepare documents and data which support a company's pricing decisions.

Prescribed forms must be completed by the larger firms, but it is advisable that smaller firms prepare similar forms and supporting data, and keep them in their files.

This would include calculations of the base period profit margin, tests of current profit margin cumulated by quarter, and documentation for cost justification supporting price increases.

In addition, memoranda of decisions that affect stabilization problems, and actions taken to resolve them—including discussions with outside advisers—should be kept.

Questions of particular concern may be directed to IRS orally or in writing.

Because of the program's fluid nature, it is not always possible to be sure that a firm has all the current and correct information. However, it is possible to make a "best effort" to reach the right decisions. In the event of a review, such effort will likely be considered in evaluating the merits of a firm's actions and intentions, and could go a long way toward reducing any penalties. END

Best effort important

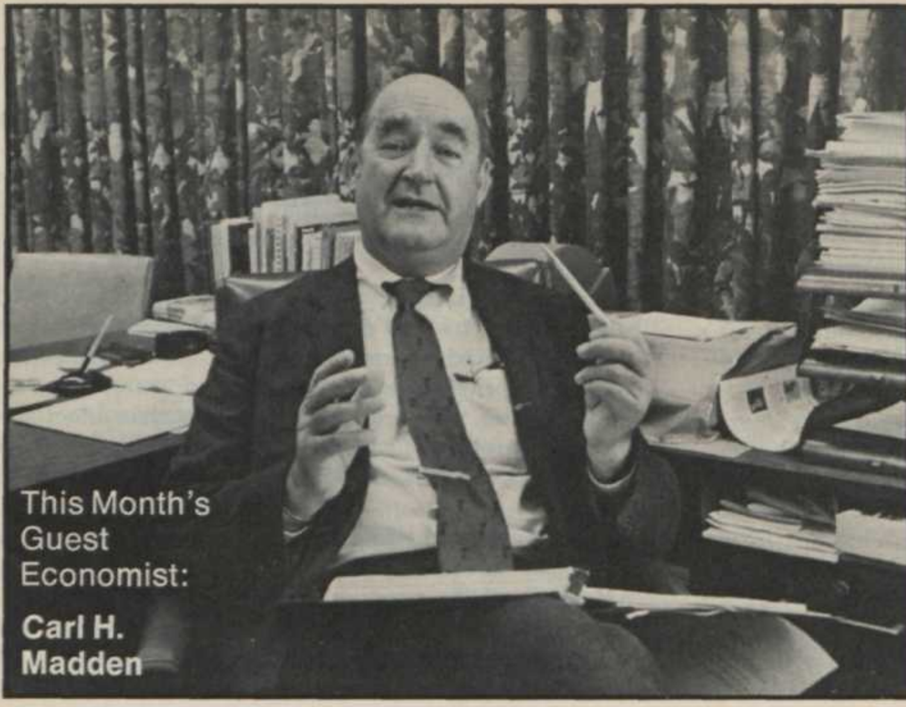

PHOTO: GEORGE TAMES

Dr. Carl H. Madden is chief economist for the Chamber of Commerce of the United States, a post he has held for 10 years.

No Noods Is Good News

Do we have to stop economic growth in order for mankind to survive? Will the earth's interlocking resources be unable to support present rates of economic and population growth much beyond the year 2100, if that long, even with advanced technology?

The answer to those questions is Yes, if you accept the now-familiar viewpoint of the "Limits to Growth," a report to the Club of Rome.

It's a report that gained particular attention when first published, for two reasons: It was prepared at Massachusetts Institute of Technology, an institution set up more than 100 years ago to promote economic growth, and it was financed by a group of European businessmen, who presumably would prefer growth.

The report has a tone reminding us of Thomas Malthus (1766-1834), the English parson-economist who rebelled against his father's optimism about progress by pointing out the tendency for reproduction to outrun subsistence.

So it may help to look back at Malthus and his theory in examining the views of the antigrowth school.

Malthus focused his entire social and economic thought on his ideas about population. He argued that population, when unchecked, grows at a rate so much faster than the supply of food can be increased that it's constantly pressing on the means of subsistence.

What Malthus overlooked is easy to see by hindsight—the growth of productivity in the last century and a half. Put another way, we know that output is a function of inputs, in any production process. We call the relationship "the production function."

Malthus thought that the production function would remain stable, that the relation of inputs to output would not change.

But by increasing productivity in the Western world, we have shifted the production function; it hasn't remained stable. Through new and evolving processes, we get more output each year for a given input of resources. So, in the industrial countries, both our population and our standard of living have risen, and we have so far escaped "the Malthusian trap."

The present-day antigrowth school could well be called "neo-Malthusian." To see why, we need to focus on the waste created by production. Sure, we are producing more goods, but we are also piling up waste and pollution. Actually—we are learning—the fact is that waste piles up at a faster rate than useful output does.

To show how, consider a Twentieth Century relationship we may call "the crud function." A crud is a stockpile of "noods," and a "nood" is a negative good.

An economic good is something which is scarce and useful. A nood is something that must be harmful—and so result in disutility. Also, it must be relatively abundant. A high level of air pollution is an example.

The amount of crud in any system depends on the amount of output. Crud, in other words, is a function of output, just as output is in turn a function of input.

Anyway, this is the way Reuben Zubrow, a professor at the University of Colorado, gets a handle on the antigrowth question. He asks about the crud function—the relation of noods to goods, or the relation between waste and output.

We know that in any one process production rises as time goes on, but the increase becomes slower and slower, and then production drops. And so we have the law of diminishing returns for any one type of production.

The crud function, on the other hand, keeps rising as output grows—and at an exponential rate. Crud mounts with output, but at a faster pace. And now, after 150 years of industrial growth, we are getting a whole lot of crud in the system.

In effect, says the "Limits to Growth" report, there is no way to keep piling up output without being buried in mountains of crud.

But, just as we have already shifted the production function by getting more output from a given input, we may also be able to shift the crud function. We need to get less crud for a given output. But how?

In general, we have two ways. One is to use more knowledge to construct our production processes. Th

other is to use energy in place of materials, and use it far more adroitly. These are powerful, new growth strategies nobody understands very well in detail yet. But we begin to see their outlines, and they are revolutionary.

Economic growth, we need to remember, isn't only a pile-up of material objects; it really means an increase in value. We need not stop the growth of wealth at all, but rather, we need to speed it up—with less and less waste. We need new forms of wealth.

More forethought—more knowledge—in our production processes may reverse the slogan "bigger and better" to "smaller and better."

Printed circuits are better than vacuum tubes. Is the geodesic dome better than buildings that use tons of concrete? Could be. How many tons of metal are best for getting someone from New York to Washington on the ground? The answer could be, the fewest. And how to plan a community? Very carefully, is the testimony of new towns like Columbia, Md., and Reston, Va.

And why transport people or even paper when sending electrons will do as well? John Kemeny, Dartmouth College president, sees in our future a national computerized library accessible to all from home computer terminals. Mathematician-philosopher Buckminster Fuller sees a nationwide, even a world-wide, TV university. Why not?

More knowledge in the processes of production means the evolution of production processes. It means out with the old, in with the new. The other strategy is to bring more useful energy to bear—both more and useful (i.e., not wasteful).

We need to use directly more energy from the sun. In two days it gives us as much as all the stored energy on earth. Think about that, and you wonder why we can't figure out how to capture more of the sun's energy directly.

Knowledge and energy are the sources of future wealth. If employed gracefully, they are the natural enemies of crud. With their use we can shift the crud function. Without them, crud could pile higher and higher as things get bigger—and worse.

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business: a look ahead

BY GROVER HEIMAN
Associate Editor

The Oil Embargo and Troubled Waters

The Arab oil embargo—on or off—is sure to give added zing to the push for international agreement on use of ocean resources.

One goal of a forthcoming United Nations Conference on the Law of the Sea will be settlement of issues left hanging by treaties (which the U.S. has signed) dealing with navigational and natural resource rights on the high seas, territorial seas and contiguous zones, and the continental shelves.

Results could have long-range implications for business enterprises and investors, specifically those in petroleum, mining, food and the maritime industries.

Who should be entitled to do what in which seabed is a major issue, which is looming larger because of accelerated development and exploration.

The National Foreign Trade Council, Inc., of New York predicts the U.S. will firmly seek guarantees to protect the integrity of private companies' investments and to preserve their security of tenure to exclusive mining rights.

This would be vital in the event any new international legal system imposes regulations that significantly alter the economics of production.

Bringing Bankruptcy Law Up to Date

The constant growth in consumer credit has been signaling for some time the need to overhaul the present federal bankruptcy law, enacted in 1898. Now, there's action.

Hearings on the subject are being held by a House Judiciary subcommittee chaired by Rep. Don Edwards (D.-Calif.), who was a member of the Commission on the Bankruptcy Laws of the United States, established in 1970 to recommend changes.

Rep. Edwards and another Congressman who served on the Commission, Charles E. Wiggins (R.-Calif.), are sponsoring a bill entitled the "Bankruptcy Act of 1973" that aims to update procedures and correct inequities.

Bankruptcies have increased 1,000 per cent over the past 20 years, lending some urgency to revamping prevailing laws, both federal and state. Object is to make it easier for consumer debtors to get relief through the bankruptcy process and to aid creditors, who usually receive little in repayment from bankruptcy proceedings.

GAO: No Tiger on Paper Work for Businesses

A paper work headache that has nothing to do with fuel shortages, but nevertheless is a product of the energy crunch, may be in store for a lot of businesses.

The cause: A non-germane rider the Senate tacked onto the Alaskan pipeline bill which stripped the Office of Management and Budget of its authority to review business questionnaires dreamed up by independent federal regulatory agencies. The job now goes to the General Accounting Office, which didn't exactly want it.

Until the President signed the bill (he voiced strong objections to this and other riders, calling them "clinkers"), OMB evaluated such surveys, and had the authority to disapprove them.

But GAO essentially is a toothless tiger as a questionnaire evaluator. It can only review and advise, not disapprove. The agencies themselves make the final determination.

Look for efforts in the next session of Congress to give GAO authority, at least, to disapprove new paper work proposals. Without such authority, GAO's main recourse will be to "jawbone" with agencies trying to impose further red tape on business.

Holding Companies May Do Some of Their Own Hauling

While bank holding companies can't yet ride shotgun on cash shipments, they may now operate courier services.

The Federal Reserve Board has issued a regulation permitting them to do so on a limited scale for their internal operations and those of subsidiaries, provided the new service is a separate, profit-oriented operation that is not subsidized by the holding company system.

It may handle checks, commercial papers and other written instruments that are exchanged among banks and banking institutions, though it may not carry currency and bearer-type negotiable instruments.

In addition, it may carry data processing materials of a banking or financial nature, and business records and documents used in processing them.

As a result of changes in the Bank Holding Company Act of 1970, holding companies can, with the Fed's approval, provide any services "closely related" to banking. A courier service, the Fed says, fills that bill.

However, one provision of the Fed's new regulation has aroused the ire of established, independent courier organizations. It makes it possible for the holding company affiliate, when service is not reasonably available, to move items such as processed film, repair parts, cut flowers and blood for outside customers.

Also before the Fed has been a request to permit holding companies to enter the armored car service business, but no action has been taken.

There are about 1,600 bank holding companies in the U.S. today, twice as many as five years ago. They control nearly two thirds of the nation's $600 billion in bank deposits.

Rural Loans and the Private Lender

Cooperative credit operations that should spur farm buying, and industrial development in small towns and rural areas, have been begun by the Farmers Home Administration.

Under the Rural Development Act of 1972, the Agriculture Department's credit agency can guarantee up to 90 per cent of loans by banks and other private lenders when applicants meet certain requirements.

This type of lending is not new to the federal government, but it's a first for the Farmers Home Administration, which last fiscal year loaned $3.75 billion directly to qualified farmers and others not eligible for credit elsewhere.

The plan is expected to operate at a modest level, initially, and in any event it will not expand the total amount of credit available beyond that specified in the agency's budget.

But it brings the private lender into the picture to make loans for buying and running farms, restoring farm operations after natural disasters, and financing industrial and other business development—and community facilities such as those for water and sewage treatment—in towns of under 50,000 population.

First priority for industrial and other business loans is being given to ventures in towns of less than 25,000 population, and for community facility loans to projects in towns of under 5,000.

The Odds Favor the Metric System

Despite vigorous resistance from organized labor, and apprehension expressed by some businessmen, the odds are extremely good that Congress will pass a bill in the next few months to launch the U.S. on a 10-year voluntary conversion to the metric system.

Advocates of metrication expect Congress will agree on a bill similar to one fashioned by the House Science and Astronautics Committee, which calls for a conversion program sans federal subsidy. But it's possible that—despite Administration and business opposition—some type of subsidy will be provided for workers who must buy their own tools.

If all goes according to plan, one year after the President signs the bill a 25-member National Metric Conversion Board created by the legislation would submit specifics to the President and Congress. Sixty days later, conversions would start.

Businesses would not be forced to make the change, but the government would go metric, coordinate information as the private sector switches over, and provide funds for metric instruction in schools.

Labor spokesmen contend that conversion would cost jobs, and allow large companies to gobble up small firms that don't have the capital with which to make the switch.

Some small businessmen, who generally concentrate on domestic markets, say the costs of conversion outweigh any benefits. In big business ranks, steelmen have expressed particularly strong reservations.

But it's widely agreed that conversion is inevitable, since the U.S. is the last major nation not on the system.

editorial

Together Again

You're seeing a lot more vests in the offices now, with the thermostats turned down.

You're seeing fewer lights in homes and businesses, and fewer cars on the road with only one passenger.

You're suddenly hearing everyone talking about the same subject. And it isn't Watergate—it's the energy crisis and what each of us can do to help solve it.

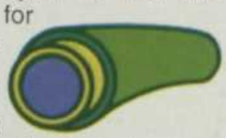
Maybe we are having a truly serious problem, but isn't it wonderful to see Americans pulling together again for a change?

Ford's better ideas have this goal: more roadtime, less downtime.

Appearance options now available on 9000 Series Fords (below) can make your linehaulers stand out on the road. And beneath the good looks are better ideas to help keep your Fords out of the shop and making money for you.

Ford radiators, for example, on 9000 Series, are built with bolted, stainless steel tanks, for strength and easy maintenance. Optional steel-and-silicone rubber coolant hoses are designed to last up to half a million miles.

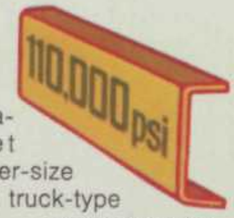
Ford maintenance is made easy with better ideas like: nylon air lines that are color-coded for fast tracing; re-usable air line fittings; tilting fiberglass front end on L-Series, standard, for feet-on-the-ground service; radiator sight gauges for instant coolant check.



Deep-dip Electrocoat priming is a Ford better idea to protect cab against rust and corrosion. Cab and sheet-metal are immersed in primer solution, which is bonded to the metal by an electric charge.

High-reliability electrical systems are achieved with Ford better ideas such as transistorized voltage regulator that automatically compensates for temperature changes. 16-gauge wiring has Hypalon® insulation, protected with neoprene/vinyl sleeves. Junction blocks in four convenient locations save time in circuit testing or adding equipment. Post-and-eyelet connections with lock washers are virtually shakeproof.

Premium steel is used for all Ford linehauler frames—up to 110,000 psi, the strongest steel you can get in trucks.



Ford's better ideas for the driver include heavy cab insulation for quiet comfort . . . super-size windshields . . . truck-type power steering . . . owner-operator options such as stainless steel mirrors, air horns and special paint. L-Series Fords offer an adjustable steering column.

94% sales increase of extra-heavy-duty Fords, in the past 5 years, says Ford's better ideas are really delivering. And Ford gives you a lot of truck for your money, as your Ford Dealer can show you . . . see him soon.

Better ideas for more roadtime, less downtime.

Satellites have taken up where Noah left off.

The Ark may be obsolete, but there's a new way to help preserve the species against flood—and a host of other perils.

It's the watchful eye of the satellite, keeping vigil over ou planet and its ecology.

These orbiting sensors see into the ocean depths. They monitor our waterways not onl for flood control but for pollution. They check on the health and composition of our forests. They track storms to help curb the threat to life and property.

RCA built the first U.S. weather satellite—TIROS—in 1960. Since then, we've create 78 other successful satellites for a variety of missions. They've logged 60 billion miles in orbit.

And they've grown increasingly sophisticated. Our latest satellites not only stand watch on the global environment, th even take earthly temperature from hundreds of miles in spa Fittingly enough (because they're named for our custome the National Oceanic and Atmospheric Administration) the new series is called NOAA.

Electronics is creating new ways to make life better. And RCA, which helped create the technology, is still innovating the electronic way.

The electronic wa

RCA